Faculty of Architecture & Planning

SCHEME OF EXAMINATION

and

DETAILED SYLLABUS

(2017-18)

B.Arch.

(Bachelor of Architecture)

Five Year Fulltime Degree Course

University Campus
NH – 12, Chaksu Bypass
Village Rampura,
Tehsil Chakshu,
Jaipur-303901

City Campus
Gate No. 3, Plot No. IP 2&3,
Phase IV, Sitapura Ind. Area,
Opp. Choki Dhani,
Jaipur-302022

Faculty of Architecture & Planning
B.Arch. Course Structure (2017-18)

B.Arch., Semester-I, Iyr. (5 yrs Degree Course)

THEORY

Sr. Nos.	Code No.	Subjects	L	T	Exam. Hrs.	30% Mid Term Ass.				70% End Term Ass.	Min. Pass. Marks for 70%=45 %	Total Marks	Min. Pass. Marks =(45 %)	Credits
						Assignment 5	Mid Term 15	Attendance 10	Min. Pass. Marks for 30%=45 %					
1	1JAR1	English Communication	2	1	2	5	15	10	13	70	31	100	45	3
2	1JAR2	Mathematics	2	1	3	5	15	10	13	70	31	100	45	3
3	1JAR3	Construction Materials-I	2	1	3	5	15	10	13	70	31	100	45	3
4	1JAR4	Architectural Structures-I	2	1	3	5	15	10	13	70	31	100	45	3
		SUB TOTAL	8	4	11	20	60	40	52	280	124	400	180	12

SESSIONALS

Sr. Nos.	Code No.	Subjects	L	S	60% Mid Term Ass.				40% End Term Ass.	Min. Pass. Marks for 40%=45 %	Total Marks	Min. Pass. Marks =(45%)	Credits
					Assignment 40%	Mid Term 10%	Attendance 10%	Min. Pass. Marks for 60%=45 %					
5	1JAR5	Architectural Drawing-I	1	3	100	25	25	67	100	45	250	112	4
6	1JAR6	Arts & Graphics-I	1	2	40	10	10	27	40	18	100	45	3
7	1JAR7	Building Construction-I	1	3	40	10	10	27	40	18	100	45	4
8	1JAR8	Introduction to Computers-I	1	1	40	10	10	27	40	18	100	45	2
9	1JAR9	Workshop Practice (Photography/ Carpentry/ Model Making)	1	3	40	10	10	27	40	18	100	45	4
10	1JAR10	Discipline & Extra Curricular Activities.	–	–	-	-	-	-	-	-	-	-	Non-Credit
11	1JAR11	Basic Design & Field Trip	1	3	40	10	10	27	40	18	100	45	4
		SUB TOTAL	6	15	300	75	75	202	300	135	750	337	21
		GRAND TOTAL	33 HRS./ WEEK								1150	575*	33

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

B.Arch, Semester-Ii, Iyr. (5 yrs Degree Course)

THEORY

Sr. Nos.	Code No.	Subjects	L	T	Exam. Hrs.	30% Mid Term Ass.				70% End Term Ass.	Min. Pass. Marks for 70%=45 %	Total Marks	Min. Pass. Marks =(45 %)	Credits
						Assignment 5	Mid Term 15	Attendance 10	Min. Pass. Marks for 30%=45 %					
1	2JAR 1	Ecology & Environment	2	1	3	5	15	10	13	70	31	100	45	3
2	2JAR 2	Construction Materials-II	2	1	3	5	15	10	13	70	31	100	45	3
3	2JAR 3	Architectural Structures-II	2	1	3	5	15	10	13	70	31	100	45	3
4	2JAR 4	Introduction To Architecture	2	1	2	5	15	10	13	70	31	100	45	3
		SUB TOTAL	8	4	11	20	60	40	52	280	124	400	180	12

SESSIONAL

Sr. Nos.	Code No.	Subjects	L	S	60% Mid Term Ass.				40 % End Term Ass.	Min. Pass. Marks for 40%=45 %	Total Marks	Min. Pass. Marks =(45 %)	Credits
					Assignment 40%	Mid Term 10 %	Attendance 10%	Min. Pass. Marks for 60%=45 %					
5	2JAR 5	Architectural Drawing-II	1	3	100	25	25	67	100	45	250	112	4
6	2JAR 6	Architectural Design (Basic Design & Field Trip)	1	3	40	10	10	27	40	18	100	45	4
7	2JAR 7	Arts & Graphics-II	1	3	40	10	10	27	40	18	100	45	4
8	2JAR 8	Building Construction-II	1	3	40	10	10	27	40	18	100	45	4
9	2JAR 9	Introduction To Computer-II	1	2	40	10	10	27	40	18	100	45	3
10	2JAR 10	Discipline & Extra Curricular Activities.	–	–	-	-	-	-	-	-	-	-	Non-Credit
		SUB TOTAL	5	14	260	65	65	175	260	117	650	292	19
		GRAND TOTAL	33 HRS./ WEEK								1050	525*	31

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

B.Arch, Semester-III, IIyr. (5 yrs Degree Course)

THEORY

Sr. Nos.	Code No.	Subjects	L	T	Exam. Hrs.	30% Mid Term Ass.				70% End Term Ass.	Min. Pass. Marks for 70%=45 %	Total Marks	Min. Pass. Marks =(45 %)	Credits
						Assignment 5	Mid Term 15	Attendance 10	Min. Pass. Marks for 30%=45 %					
1	3JAR 1	History of Architecture-I	2	1	3	5	15	10	13	70	31	100	45	3
2	3JAR 2	Building Science-I (Climatology)	2	1	3	5	15	10	13	70	31	100	45	3
3	3JAR 3	Construction Materials-III	1	1	3	5	15	10	13	70	31	100	45	2
4	3JAR 4	Architectural Structures-III	2	1	2	5	15	10	13	70	31	100	45	3
		SUB TOTAL	7	4	11	20	60	40	52	280	124	400	180	11

SESSIONALS

Sr. Nos.	Code No.	Subjects	L	S	60% Mid Term Ass.				40 % End Term Ass.	Min. Pass. Marks for 40%=45 %	Total Marks	Min. Pass. Marks =(45 %)	Credits
					Assignment 40%	Mid Term 10 %	Attendance 10%	Min. Pass. Marks for 60%=45 %					
5	3JAR 5	Architectural Design-I	_	8	100	25	25	67	100	45	250	112	8
6	3JAR 6	Theory of Design-I	1	1	40	10	10	27	40	18	100	45	2
7	3JAR 7	Arts & Graphics-III	1	2	40	10	10	27	40	18	100	45	3
8	3JAR 8	Building Construction-III	1	3	40	10	10	27	40	18	100	45	4
9	3JAR 9	Structure Lab.-I	-	2	40	10	10	27	40	18	100	45	2
10	3JAR 10	Computer Application in Architecture-I	1	2	40	10	10	27	40	18	100	45	3
11	3JAR 11	Discipline & Extra Curricular Activities	–	–	-	-	-	-	-	-	-	-	Non-Credit
		SUB TOTAL	4	18	300	75	75	202	300	135	750	337	22
		GRAND TOTAL	32 HRS./ WEEK								1150	575*	33

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

B.Arch, Semester-IV, IIyr. (5 yrs Degree Course)

THEORY

Sr. Nos.	Code No.	Subjects	L	T	Exam. Hrs.	30% Mid Term Ass.				70% End Term Ass.	Min. Pass. Marks for 70%=45 %	Total Marks	Min. Pass. Marks =(45 %)	Credits
						Assignment 5	Mid Term 15	Attendance 10	Min. Pass. Marks for 30%=45 %					
1	4JAR 1	History of Architecture-II	2	1	3	5	15	10	13	70	31	100	45	3
2	4JAR 2	Surveying	1	1	3	5	15	10	13	70	31	100	45	2
3	4JAR 3	Construction Materials-IV	1	1	3	5	15	10	13	70	31	100	45	2
4	4JAR 4	Architectural Structures-IV	2	1	2	5	15	10	13	70	31	100	45	3
		SUB TOTAL	6	4	11	20	60	40	52	280	124	400	180	10

SESSIONALS

Sr. Nos.	Code No.	Subjects	L	S	60% Mid Term Ass.				40 % End Term Ass.	Min. Pass. Marks for 40%=45 %	Total Marks	Min. Pass. Marks =(45 %)	Credits
					Assignment 40%	Mid Term 10 %	Attendance 10%	Min. Pass. Marks for 60%=45 %					
5	4JAR 5	Architectural Design-II (Including Measured Drawing camp)	_	8	100	25	25	67	100	45	250	112	8
6	4JAR 6	Theory of Design-II	1	1	40	10	10	27	40	18	100	45	2
7	4JAR 7	Arts & Graphics-IV	1	2	40	10	10	27	40	18	100	45	3
8	4JAR 8	Building Construction-IV	1	3	40	10	10	27	40	18	100	45	4
9	4JAR 9	Computer Application in Architecture-II	1	2	40	10	10	27	40	18	100	45	3
10	4JAR 10	Surveying Lab	_	2	40	10	10	27	40	18	100	45	2
11	4JAR 11	Discipline & Extra Curricular Activities	–	–	-	-	-	-	-	-	-	-	Non-Credit
		SUB TOTAL	4	18	300	75	75	202	300	135	750	337	22
		GRAND TOTAL	32 HRS./ WEEK								1150	575*	32

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

B.Arch, Semester-V, IIIyr. (5 yrs Degree Course)

THEORY

Sr. Nos.	Code No.	Subjects	L	T	Exam. Hrs.	30% Mid Term Ass.				70% End Term Ass.	Min. Pass. Marks for 70%=45 %	Total Marks	Min. Pass. Marks =(45 %)	Credits
						Assignment 5	Mid Term 15	Attendance 10	Min. Pass. Marks for 30%=45 %					
1	5JAR1	History of Architecture-III	2	1	3	5	15	10	13	70	31	100	45	3
2	5JAR2	Building Services-I (Water supply & sanitation)	2	1	3	5	15	10	13	70	31	100	45	3
3	5JAR3	Construction Materials-V	1	1	3	5	15	10	13	70	31	100	45	2
4	5JAR4	Architectural Structures-V	2	1	2	5	15	10	13	70	31	100	45	3
		SUB TOTAL	7	4	11	20	60	40	52	280	124	400	180	11

SESSIONALS

Sr. Nos.	Code No.	Subjects	L	S	60% Mid Term Ass.				40 % End Term Ass.	Min. Pass. Marks for 40%=45 %	Total Marks	Min. Pass. Marks =(45 %)	Credits
					Assignment 40%	Mid Term 10 %	Attendance 10%	Min. Pass. Marks for 60%=45 %					
5	5JAR5	Architectural Design-III & Field Trip	–	8	100	25	25	67	100	45	250	112	8
6	5JAR6	Quantity Surveying & specification	2	1	40	10	10	27	40	18	100	45	3
7	5JAR7	Sociology	1	1	40	10	10	27	40	18	100	45	2
8	5JAR8	Building Construction-V	1	3	40	10	10	27	40	18	100	45	4
9	5JAR9	Computer Application in Architecture-III	–	2	40	10	10	27	40	18	100	45	2
10	5JAR10	Elective-I 5JAR10.1 Interior Design 5JAR10.2 History of Rajasthan Art	1	1	40	10	10	27	40	18	100	45	2
11	5JAR11	Discipline & Extra Curricular Activities	–	–	-	-	-	-	-	-	-	-	Non-Credit
12	5JAR12	Landscape and Site Planning	1	2	40	10	10	27	40	18	100	45	3
		SUB TOTAL	6	18	340	85	85	229	340	153	850	382	24
		GRAND TOTAL	35 HRS./ WEEK								1250	625*	35

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

B.Arch, Semester-VI, IIIyr. (5 yrs Degree Course)

THEORY

Sr. Nos.	Code No.	Subjects	L	T	Exam. Hrs.	30% Mid Term Ass.				70% End Term Ass.	Min. Pass. Marks for 70%=45 %	Total Marks	Min. Pass. Marks =(45 %)	Credits
						Assignment 5	Mid Term 15	Attendance 10	Min. Pass. Marks for 30%=45 %					
1	6JAR1	History of Architecture-IV	2	1	3	5	15	10	13	70	31	100	45	3
2	6JAR2	Building services-II (Electrical Services)	2	1	3	5	15	10	13	70	31	100	45	3
3	6JAR3	Construction Materials-VI	1	1	3	5	15	10	13	70	31	100	45	2
4	6JAR4	Architectural Structures-VI	2	1	2	5	15	10	13	70	31	100	45	3
		SUB TOTAL	7	4	11	20	60	40	52	280	124	400	180	11

SESSIONALS

Sr. Nos.	Code No.	Subjects	L	S	60% Mid Term Ass.				40% End Term Ass.	Min. Pass. Marks for 40%=45 %	Total Marks	Min. Pass. Marks =(45%)	Credits
					Assignment 40 %	Mid Term 10%	Attendance 10%	Min. Pass. Marks for 60%=45 %					
5	6JAR5	Architectural Design-IV & Field Trip	_	8	100	25	25	67	100	45	250	112	8
6	6JAR6	Working Drawings	_	3	40	10	10	27	40	18	100	45	3
7	6JAR7	Building Economics	1	1	40	10	10	27	40	18	100	45	2
8	6JAR8	Building Construction-VI	1	3	40	10	10	27	40	18	100	45	4
9	6JAR9	Elective-II 6JAR9.1 Construction Management 6JAR9.2 Sustainable Architecture 6JAR9.3 Low Cost Construction And Techniques 6JAR9.4 Design for Disabled	1	1	40	10	10	27	40	18	100	45	2
10	6JAR10	Computer Applications in Architecture-IV	_	2	40	10	10	27	40	18	100	45	2
11	6JAR11	Educational Tour	_	_	40	10	10	27	40	18	100	45	3
12	6JAR12	Discipline & Extra Curricular Activities	_	_	-	-	-	-	-	-	-	-	Non-Credit
		SUB TOTAL	3	18	340	85	85	229	340	153	850	382	24
		GRAND TOTAL	32HRS./ WEEK								1250	625*	35

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

B.Arch, Semester-VII, IVyr. (5 yrs Degree Course)

THEORY

Sr. Nos.	Code No.	Subjects	L	T	Exam. Hrs.	30% Mid Term Ass.				70% End Term Ass.	Min. Pass. Marks for 70%=45 %	Total Marks	Min. Pass. Marks =(45 %)	Credits
						Assignment 5	Mid Term 15	Attendance 10	Min. Pass. Marks for 30%=45 %					
1	7JAR1	Contract Documents & Byelaws	1	1	2	5	15	10	13	70	31	100	45	2
2	7JAR2	Building Services-III (Mechanical Services)	2	1	2	5	15	10	13	70	31	100	45	3
3	7JAR3	Building Science-II (Acoustics & Illumination)	2	1	2	5	15	10	13	70	31	100	45	3
4	7JAR4	Architectural Structures-VII	1	1	3	5	15	10	13	70	31	100	45	2
5	7JAR5	Introduction to Settlement Planning	1	1	2	5	15	10	13	70	31	100	45	2
		SUB TOTAL	7	5	11	25	75	50	65	350	155	500	225	12

SESSIONALS

Sr. Nos.	Code No.	Subjects	L	S	60% Mid Term Ass.				40% End Term Ass.	Min. Pass. Marks for 40%=45 %	Total Marks	Min. Pass. Marks =(45%)	Credits
					Assignment 40%	Mid Term 10%	Attendance 10%	Min. Pass. Marks for 60%=45 %					
6	7JAR6	Architectural Design-V & Field Trip	_	8	100	25	25	67	100	45	250	112	8
7	7JAR7	Advanced Building Construction	1	2	40	10	10	27	40	18	100	45	3
8	7JAR8	Introduction to Settlement Planning (studio)	1	3	40	10	10	27	40	18	100	45	4
9	7JAR9	Dissertation	_	4	80	20	20	54	80	36	200	90	4
10	7JAR10	Elective 7JAR10.1 Alternate Energy systems in Architecture 7JAR10..2 Vernacular Architecture	1	1	40	10	10	27	40	18	100	45	2
11	7JAR11	Discipline & Extra Curricular Activities	–	–	-	-	-	-	-	-	-	-	Non-Credit
		SUB TOTAL	3	18	300	75	75	202	300	135	750	337	21
		GRAND TOTAL	33 HRS./ WEEK								1250	625*	33

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

B.Arch, Semester-VIII, IVyr. (5 yrs Degree Course)

Sr. No	Code Nos	Subjects									Total Marks.	MIN.PASS MARKS=(45%)	CREDITS
1	8JAR1	Practical: Training & its presentation / seminar i) Monthly work reports from architects' office ii) Critical appraisal of built projects iii) field documentation of architectural details iv) site supervision of built projects v) Training reports									300	135	6
Sr. Nos.	Code No.	Subjects	L	S	60% Mid Term Ass.				40 % End Term Ass.	Min. Pass. Marks for 40%=45%	Total Marks	Min. Pass. Marks =(45%)	Credits
					Assignment 40%	Mid Term 10 %	Attendance 10%	Min. Pass. Marks for 60%=45%					
2	8JAR2	Discipline & Extra Curricular Activities	–	–	-	-	-	-	-	-	-	-	Non-Credit
		GRAND TOTAL									300	150*	6

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

B.Arch, Semester-IX, Vyr. (5 yrs Degree Course)

Sr. No	Code Nos	Subjects									Total Marks.	MIN.PASS MARKS=(45%)	CREDITS
1	9JAR1	Practical: Training & its presentation / seminar i) Monthly work reports from architects' office ii) Critical appraisal of built projects iii) field documentation of architectural details iv) site supervision of built projects v) Training reports									300	135	6
Sr. Nos.	Code No.	Subjects	L	S	60% Mid Term Ass.				40 % End Term Ass.	Min. Pass. Marks for 40%=45%	Total Marks	Min. Pass. Marks =(45%)	Credits
					Assignment 40%	Mid Term 10 %	Attendance 10%	Min. Pass. Marks for 60%=45%					
2	9JAR2	Discipline & Extra Curricular Activities	–	–	-	-	-	-	-	-	-	-	Non-Credit
		GRAND TOTAL									300	150*	6

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

B.Arch, Semester-X, Vyr. (5 yrs Degree Course)

THEORY

Sr. Nos.	Code No.	Subjects	L	T	Exam. Hrs.	30% Mid Term Ass.				70 % End Term Ass.	Min. Pass. Marks for 70%=45%	Total Marks	Min. Pass. Marks =(45 %)	Credits
						Assignment 5	Mid Term 15	Attendance 10	Min. Pass. Marks for 30%=45%					
1	10JAR1	Professional Practice & Management	2	1	2	5	15	10	13	70	31	100	45	3
2	10JAR2	Housing	2	1	2	5	15	10	13	70	31	100	45	3
		SUB TOTAL	4	2	4	10	30	20	26	140	62	200	90	6

SESSIONALS

Sr. Nos.	Code No.	Subjects	L	S	60% Mid Term Ass.				40 % End Term Ass.	Min. Pass. Marks for 40%=45 %	Total Marks	Min. Pass. Marks =(45 %)	Credits
					Assignment 40%	Mid Term 10 %	Attendance 10%	Min. Pass. Marks for 60%=45 %					
3	10JAR3	Elective 10JAR3.1 Urban Conservation 10JAR3.2 Urban Design	2	1	40	10	10	27	40	18	100	45	3
4	10JAR4	Elective 10JAR4.1 Disaster Resistant structure 10JAR4.2 Architecture Development and legislation	2	2	40	10	10	27	40	18	100	45	4
5	10JAR5	Advanced Study of thesis topic	2	1	40	10	10	27	40	18	100	45	3
6	10JAR6	Thesis project	-	6	200	50	50	135	200	90	500	225	6
7	10JAR7	Discipline & Extra Curricular Activities	–	–	-	-	-	-	-	-	-	-	Non-Credit
		SUB TOTAL	6	10	320	80	80	216	320	144	800	360	16
		GRAND TOTAL	26 HRS./ WEEK								1000	500*	22

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Faculty of Architecture & Planning
B.Arch. Course Structure (2016-17)

B.Arch., Semester-I, Iyr. (5 yrs Degree Course)

THEORY

Sr. Nos.	Code No.	Subjects	L	T	Exam. Hrs.	30% Mid Term Ass.				70% End Term Ass.	Min. Pass. Marks for 70%=45 %	Total Marks	Min. Pass. Marks =(45 %)	Credits
						Assignment 5	Mid Term 15	Attendance 10	Min. Pass. Marks for 30%=45 %					
1	1JAR1	English Communication	2	1	2	5	15	10	13	70	31	100	45	3
2	1JAR2	Mathematics	2	1	3	5	15	10	13	70	31	100	45	3
3	1JAR3	Construction Materials-I	2	1	3	5	15	10	13	70	31	100	45	3
4	1JAR4	Architectural Structures-I	2	1	3	5	15	10	13	70	31	100	45	3
		SUB TOTAL	8	4	11	20	60	40	52	280	124	400	180	12

SESSIONALS

Sr. Nos.	Code No.	Subjects	L	S	60% Mid Term Ass.				40% End Term Ass.	Min. Pass. Marks for 40%=45 %	Total Marks	Min. Pass. Marks =(45%)	Credits
					Assignment 40%	Mid Term 10%	Attendance 10%	Min. Pass. Marks for 60%=45 %					
5	1JAR5	Architectural Drawing-I	1	3	100	25	25	67	100	45	250	112	4
6	1JAR6	Arts & Graphics-I	1	2	40	10	10	27	40	18	100	45	3
7	1JAR7	Building Construction -I	1	3	40	10	10	27	40	18	100	45	4
8	1JAR8	Introduction to Computers-I	1	1	40	10	10	27	40	18	100	45	2
9	1JAR9	Workshop Practice (Photography/ Carpentry/ Model Making)	1	3	40	10	10	27	40	18	100	45	4
10	1JAR10	Discipline & Extra Curricular Activities.	–	–	-	-	-	-	-	-	-	-	Non-Credit
11	1JAR11	Basic Design & Field Trip	1	3	40	10	10	27	40	18	100	45	4
		SUB TOTAL	6	15	300	75	75	202	300	135	750	337	21
		GRAND TOTAL	33 HRS./ WEEK								1150	575*	33

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Semester : **First** **1st Year**
Subject Name : **ENGLISH COMMUNICAITON**
Subject Code : **1JAR1**

L	T/S	Exam. Hrs.	30% Mid Term Ass.				70%End Term Ass.	Min. Pass Marks For 70% =(45%)	Total Marks	Min. Pass Marks =(45%)	Credits
			Assignment 5	Mid Term 15	Attendance 10	Min. Pass. Marks For 30%=45%					
2	1	2	5	15	10	13	70	31	100	45	3

Objective : Develop Communication skills of the students to be able to make coherent presentations and write letters and reports as required during studies and in Practice.

Unit I	Basic Communication Model Verbal and Non Verbal Communication Questioning Skills Using English Language Properly • Use of words • Common Errors in English • Active and Passive Voice
Unit II	**Composition-I** • Précis • Essay • Paragraph • Copy Writing for advertisements — characteristics of a good advertisement, aids to make advertisement attractive and effective.
Unit III	**Composition-II** • Technical reports and letter writing • Speeches, profile of speaker, characteristics of speech. • Aesthetic and critical writing, kinesics. • Appreciation of scene, figures and images.
Unit IV	Business & Professional Letter writing.
Unit V	Presentation Skills (for formal design presentations, seminars etc) Listening Skills Preparing Written Reports

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

Interactive Lecturer sessions involving practice to be followed rigorously with assignments and class presentations. ***Formal Presentation in class will form integral part of end of term exam***

Reference Books :

1. Wren & Martin
2. Advanced English Grammar by Hewings Martin
3. Essential English Grammar by Murphy
4. Fowler's Moderm English Usage by Oxford
5. A Communication Grammar of English by Suartuik & Leech
6. A Practical English Grammer by Thomson and Martinet
7. Communication In A Virtual Organization by Collins Staandra D
8. Business Communication by Bhatia Varinder
9. Essentials of Business Communication by Jain & Saakshi
10. Advanced Communication Skills Laboratory Manu by Sudha Rani

Semester : **First** **1st Year**

Subject Name : **MATHEMATICS**

Subject Code : **1JAR2**

L	T/S	Exam. Hrs.	30% Mid Term Ass.				70% End Term Ass.	Min. Pass Marks For 70% =(45%)	Total Marks	Min. Pass Marks =(45%)	Credits
			Assignment 5	Mid Term 15	Attendance 10	Min. Pass. Marks For 30%=45%					
2	1	3	5	15	10	13	70	31	100	45	3

Objective :

Unit I	**Statistics** Mathematical expression, Moments and M.G.F., Probability-simple problems, Binomial, Poisson and normal distributions-simple applications
Unit II	**Differential Equations** First order and first degree-variables separable, Homogeneous form, reducible to homogeneous form, Linear differential Equation, reducible to Linear form, exact equations, second order ODE with constant coefficients
Unit III	**Matrices** Rank of matrix, solutions of linear simultaneous equation, inverse of matrix by elementary transformations, Eigen values, Eigen vectors, Cayley Hamilton Theorem (without proof).
Unit IV	**Linear Programme Problems**
Unit V	**Coordinate Geometry of Three Dimensions** Sphere, Cylinder, Cone, Equation of Sphere, Cone Right Circular Cone.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

Reference Books :

1. Discrete Mathematics by Sharma
2. Engineering mathematics by Gaur & Koul
3. Engineering Mathematics by Mangal
4. Engineering Mathematics by Jain & Rawat
5. Probability and statistics by Spiegel
6. Probability and statistics by Jhoanson
7. Probailty and Statics in Engineering by Hines
8. Difrferential Equations by Ross
9. Linear Algebra by Singh

Semester : **First** **1st Year**

Subject Name : **CONSTRUCTION MATERIALS-I**

Subject Code : **1JAR3**

L	T/S	Exam. Hrs.	30% Mid Term Ass.				70%End Term Ass.	Min. Pass Marks For 70% =(45%)	Total Marks	Min. Pass Marks =(45%)	Credits
			Assignment 5	Mid Term 15	Attendance 10	Min. Pass. Marks For 30%=45%					
2	1	3	5	15	10	13	70	31	100	45	3

Objective : The Understanding and Application of Basic Building Materials

Content : In the context of Materials, Study of the nature of Materials, the Manufacturing Process, Structural, Visual and Textural Properties, Identification and Selection, their application in buildings.

Stone

Brick

Timber

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Identification and Study of Relevant, I.S. Codes, Seminars and Preparation of Reports. Visits to Manufacturing Units Are Desirable. Field Studies should preferably Form an Integral Part of Tutorial Work.

Reference Books :

1. Architecture & materials by Benitez Cristira C.
2. Building materials by Varghese P C
3. Engineering Materials by Rangwala
4. Introduction to Engineering Materials by Agarwal
5. Smart Materials in Architecture, Interior Architecture and Design by Axel Ritter
6. A Textbook of Strength of Materials by Dr. R.K. Bansal
7. Architecture Materials
8. Architecture Materials Words by Holz (Bois)
9. Architecture Materials Concrete
10. Architecture materials Glass
11. Mitchell's Materials by Alan Everett

Semester : **First** **1st Year**
Subject Name : **ARCHITECTURAL STRUCTURES-I**
Subject Code : **1JAR4**

L	T/S	Exam. Hrs.	30% Mid Term Ass.				70%End Term Ass.	Min. Pass Marks For 70% =(45%)	Total Marks	Min. Pass Marks =(45%)	Credits
			Assignment 5	Mid Term 15	Attendance 10	Min. Pass. Marks For 30%=45%					
2	1	3	5	15	10	13	70	31	100	45	3

Objective :

Unit I	**Concept of Force** Graphical Presentation of Force, Coplanar And Ten Coplanar Forces, Concurrent and Non Concurrent Forces, Composition and Resolution of Coplanar Forces Graphical and Analytical Methods.
Unit II	**Built-up Steel Section** Centre of Gravity and Moments of Inertia, Parallel Axes Theorems, Product of Inertia, Use of Steel Tables.
Unit III	**Stress and Strain** l concept units, tensile, compressive and shear stresses, Modulii of Elasticity and their relationship, Linear and Lateral Strains, Poisson's Ratio, Stress Values for Timber, Cast Iron, Mild Steel and for Steel in Tension Compression, Shear and Bending as per ISI Code.
Unit IV	**Types of Loads** Dead, Live, Wind, Impact and Earthquake, Concentrated, Uniformly Distributed and Varying Loads, Moment of a Force.
Unit V	**Couple and its Moment** Conditions of Statistical Equilibrium of forces, Concept of Beams and Various Support Conditions, Determination of Support Reactions, both Analytically and Graphically.

Notes : Mid Term Exam shall be as of Unit I to III.
Sessionals work shall include assignments/tests on the above topics.
In theory examination there will be a separate question from each unit with choice within the unit/question. All units/questions will be compulsory.

Exercise / Teaching Methodology

Reference Books :

1. P.C.Punmia, Strength of Materials and Theory of Structures; Vol. I, Lakmi Publications, Delhi 1994.
2. S. Ramamrutham, Strength of Materials – Dhanpatrai & Sons, Delhi, 1990.
3. R.K. Rajput – Strength of Materials, S. Chand & Company Ltd. New Delhi 1996.
4. A.P.Dongre – Structural Engineering for Architecture, Scitech Publications Ltd.
5. Strength of Materials by Khurmi R S
6. Steel Table by Agor R

Semester : **First** **1st Year**
Subject Name : **ARCHITECHURAL DRAWING-I**
Subject Code : **1JAR5**

L	T/S	60% Mid Term Ass.			Min. Pass. Marks For 60%=(45%)	40% End Term Ass.	Min. Pass. Marks For 40%=(45%)	Total Marks.	Min. Pass Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	3	100	25	25	67	100	45	250	112	4

Objective : To Develop Drawing Skills As a Thinking Tool, Visualization, And Representation of Design.

Unit I	**Graphical Codes, Symbols and Scales** • Architectural letterings • Types of lines • Symbolic representations of building materials • Symbolic Representations of Building parts. • Plane Scales • Diagonal Scales
Unit II	**Principles of Pane Geometric views and Projections** • Isometric views • Axonometric views • Oblique views • Isometric projections • Axonometric Projections • Oblique Projections
Unit III	**Orthographic projections (One and two Dimensions)** • Points • Lines • Lamina (Planes) (Parallel, Perpendicular and inclined projections of above)
Unit IV	**Orthographic projections (Three Dimensions)** • Various solid — Parallel, Perpendicular and inclined projections.
Unit V	**Sections, Interpenetrations and Development of Surfaces** • Sections of various solid - Parallel, Perpendicular and inclined. • Interpenetration of various solid geometrical object

Notes : Mid Term Exam shall be as of Unit I to III.
Sessionals are to be done in the form of drawings on drawing sheets and proportionate sketches on above topics. Sessional will be evaluated continuously in class.

Exercise / Teaching Methodology
: Pencil Sketching - Human Figures, Vegetation, Automobile, Buildings, Still Life, etc., Pen and Ink Sketching. Use of Water Colours, Poster Colours, Pencil Colours, Crayons, Oil Pastels, Etc. In Rendering Drawings and Sketches Colour Wheel Study of Primary, Secondary And Tertiary Colours.

Reference Books :

1. IH. Morris, Geometrical Drawing for Art Students - Orient Longman, Madras, 2004.
2. Francis Ching, Architectural Graphics, Van Nostrand Rein Hold Company, New York, 1964.
3. George K.Stegman, Harry J.Stegman, Architectural Drafting Printed in USA by American Technical Society, 1966.
4. C.Leslie Martin, Architectural Graphics, The Macmillan Company, New York, 1964.
5. Bhatt N.D., Engineering Drawing, India, 2011.
6. Architectural Rending by Rendow Yee.
7. Engineering Drawing by Bhatt (N D) & Others
8. Engineering Drawing, J by Jolhe
9. Engineering Drawing and Design by Madsen (David A.)
10. Engineering Drawing and Graphics by Venugopal (K.)
11. Understanding Construction Drawing Single and mu. by Mark W. Huth
12. Design Drawing by Francis D.K. Ching
13. Building Drawing by MG Shah
14. Architectural Drawing and Light const. by Muller
15. Architectural Drawing by Reendow Yee
16. Drawing a Creative Process by D.K. Ching

Semester : **First** **1st Year**

Subject Name : **ARTS AND GRAPHICS I**

Subject Code : **1JAR6**

L	T/S	60% Mid Term Ass.			Min. Pass. Marks For 60%=(45%)	40% End Term Ass.	Min. Pass. Marks For 40%=(45%)	Total Marks.	Min. Pass Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	2	40	10	10	27	40	18	100	45	3

Objective : Development of Graphic Skills, Ability and Comprehension. Establishing Significance of Art.

Unit I	To learn the utility of pencil as a powerful tool of graphic communication.
Unit II	Rendering Techniques
Unit III	Human Figures, Vegetation & their Rendering
Unit IV	To Appreciate the role of different color in Presentation and Rendering Techniques
Unit V	Analytical study of color wheel

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Pencil Sketching- Human Figures, Vegetation, Automobiles, Buildings, Still Life, Etc. Pen and Ink Sketching. Color wheel, study of primary, secondary & tertiary colors.

Reference Books :

1. Water Colour by Mulick (Milind)
2. Sketch Book by Mulick (Milind)
3. Rendering with Pen +Ink by Gill (Robert W)
4. Color in Sketching and Rendering by Guptill
5. Monographs by Lalit Kala Academy, New Delhi

Semester : **First** **1st Year**

Subject Name : **BUILDING CONSTRUCTION–I**

Subject Code : **1JAR7**

L	T/S	60% Mid Term Ass.			Min. Pass. Marks For 60%=(45%)	40% End Term Ass.	Min. Pass. Marks For 40%=(45%)	Total Marks.	Min. Pass Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	3	40	10	10	27	40	18	100	45	4

Objective : The Construction Studio Work Should Demonstrate the Inter Dependence of The Building Materials and Elements and Their Understanding to Form Complete Building Envelope.

Unit I	**Brick:** • Types of bricks. • Bonds in brick masonry for various thicknesses of walls and various situations like ends, junctions, etc. • Attached and detached pier. • Jointing and pointing. • Cavity walls.
Unit II	**Stone:** • Stone dressing of different types. • Stone masonry of different types for various thicknesses of walls. • Jointing and pointing / coping
Unit III	**Foundation:** • Types of simple foundations. • In Bricks • In Stones, • Timbering to excavation.
Unit IV	**Arches:** • Type of Arches • Brick Arches • Stones Arches
Unit V	**Lintels:** • Type of Lintels • Brick Lintels. • Stone lintels, • Centering materials and methods.

Notes :

1. Mid Term Exam shall be as of Unit I to III.
2. There shall be regular site visits to buildings, under construction or constructed, to explain the above topics. Use of audio-visuals should be stressed.
3. Sessional work shall be done as scaled drawing on drawing sheets and freehand drawings along with occasional visits to construction sites.

Exercise / Teaching Methodology

: Preparation of Drawings, Site Reports and Other Exercises Covering the Above

Reference Books :

1. S.P Arora and S.P. Bindra, Text book of Building Construction, ganpat Rai publications (P) Ltd New Delhi, 2005.
4. Barry, the construction of buildings Affiliated East West press put Ltd New Delhi 1999.
5. Francisa D.K. Ching Building Construction illustrated John Wiley & Sons 2000.
6. Building Construction by Varghese
7. Barry's Introduction to Construction of Buildings by Stephen Emmitt & Christopher Gorse
8. Handbook of Building Construction Vol-II by M M Goyal
9. Building construction illustrated by Ching
10. Building Constructions by Rangwala (S.C.)
11. Building Construction by Rangwala
12. Building Constructions Illstrated by Ching (Francis D K)
13. The Text Book of Building Construction by Bindra Arora
14. The Construction of Buildings by Barry R
15. Bulding Construction by Punmia B C
16. Bulding Construction Hand Book by Chudley & Other
17. Building Construction Vol. I-IV by Mckay W.B.
18. Carpentry and Building Construction by Feirer & Hutchings
19. Building Construction by Sushil Kumar
20. Mitchell's Introduction to Building by Roger Greeno & Derek Osbourn

Semester : **First** **1st Year**

Subject Name : **INTRODUCTION TO COMPUTERS–I**

Subject Code : **1JAR8**

L	T/S	60% Mid Term Ass.			Min. Pass. Marks For 60%=(45%)	40% End Term Ass.	Min. Pass. Marks For 40%=(45%)	Total Marks.	Min. Pass Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	1	40	10	10	27	40	18	100	45	2

Objective : Develop Awareness of Computer and its Environment.

Unit I	Computer as a Tool for Architects Introduction to Computer and its Peripherals
Unit II	Hardware Brief (Useful For Architects) Viz. CPU, Keyboard, Mouse, Printer, Plotter, Scanner, Digitizer Etc.
Unit III	Introduction to Various Software Relevant to Architects viz. MS Word.
Unit IV	Excel, PowerPoint.
Unit V	Introduction to Basic Internet Applications.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Assignments Related To Various Applications of These Softwares

Reference Books :

1. Computer Fundamentals by Singh
2. Fundamental of Computers by Lamba (C.S.)
3. Fundamentals of Computer by Rajaraman
4. Introduction to Computer by Norton, P.
5. Foundations of Computing by Sinha & Sinha

Semester : **First** **1st Year**

Subject Name : **WORKSHOP PRACTICE (PHOTOGRAPHY, CARPENTRY, WELDING & MODEL MAKING)**

Subject Code : **1JAR9**

L	T/S	60% Mid Term Ass.			Min. Pass. Marks For 60%=(45%)	40% End Term Ass.	Min. Pass. Marks For 40%=(45%)	Total Marks.	Min. Pass Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	3	40	10	10	27	40	18	100	45	4

Objective : To Develop Photographic Skills, to understand Simple Architectural Forms, Joinery and Construction Details Through Field Exercises and Model Making

Unit I	To Provide Technical know how about Cameras, its Accessories and their Applications Including the Following: Camera-Definition, History, Types and Usage, Aperture, Shutter Speed, Types of Lenses and Accessories
Unit II	Film Rolls, Types and Usages. Flash, Types and Usage
Unit III	Digital Photography, Technical details of Digital Camera like Pixels, white balance, night shots etc. Editing and formatting Digital Images
Unit IV	Composition-Settings with respect to view finder, Weather, Place, Colour, Mood and purpose. Architectural-Exteriors and Interiors with respect to Scale, Composition, Texture, Colour, Skyline, Light and Shade
Unit V	Carpentry: Handling different carpentry tools, carpentry processes, carpentry joints and wood working machines Masonry: Handling the bricks, mixing the mortar, bond work of bricks, stones and masonry tools. Types of joints in wood and metals

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Shooting Pictures of Landscape, Portraits, Interiors and Buildings. Getting Prints from Digital Images, Making Compositions using digital pictures, Modifying digital pictures using software, preparing slide shows.Making Scaled Models with Different Materials, Workshop/Assignments based On Construction joints in wood and metals

Reference Books :

1. Engineering Workshop by Tiwari
2. Workshop by Raguwanshi
3. Carpentary And Joinery Vol-2, 3rd Edition by Brian Porter & Christopher Tooke
4. Making the Most of Small Spaces by Crafti (Stephen)
5. Workshop Practice for Mechanical by Ashish Dutt Sharma

Semester : **First** **1st Year**

Subject Name : **BASIC DESIGN AND FIELD TRIP**

Subject Code : **1JAR11**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	3	40	10	10	27	40	18	100	45	4

Objective : The aim of the subject is to introduce to the students the design fundamentals and design vocabulary and enable them to apply the same in compositions and designs.

Unit I	• Points, Lines, Planes, Color theory and compositions. Introduction to modern Arts and various other techniques. Principles of Design, Scale in Architecture.
Unit II	• Forms, Properties of forms, variations in forms with inter-relationship among planes, colours, tones, textures. Application of them in two and three-dimensional compositions, presented in form of scaled drawings, views, and freehand sketches to develop the skill and understanding of forms, proportions etc. in various media viz. pencil, pens, colors etc.
Unit III	• Study through models of different materials viz. paper, clay, wax, soap, wires etc. The idea is mass and space handling with understanding the roles of form, colour and texture.
Unit IV	• Anthropometric study and ergonomics of human figure, dimensions of furniture and relationship with human anthropometrics (like in kitchens, toilets, bedrooms, staircases etc) with freehand drawing of human figures, vehicles, trees, buildings etc. to have a better understanding of proportion.
Unit V	• Designing of basic building components (like kitchens, bedrooms, toilets etc.)

Notes : Mid Term Exam shall be as of Unit I to III.
Sessionals shall be in the form of drawings and models.
One time problems (as class tests) is to be conducted in class other than regular design problems

Exercise / Teaching Methodology : Graphical representation of Ideas, Concepts and Design Principal in 2-D and 3-D. Exercise In 2 and 3 Dimensional Composition to Achieve Harmony, Balance, Contrast, Rhythm, etc., Geometrical Analysis of Forms and patterns in Architecture, Objects of Everyday Use and other Forms. Example Pedestal Basic Shelter, Street Furniture, Memorials etc.

Reference Books :

1. Francis D.K.Ching - Architecture - Form Space and Order Van Nostrand Reinhold Co., (Canaa), 1979.
2. Website: Art & Architecture by Ar. Sirish Sukhatme
3. Time Saver Standards for Building Types by Dechiara & Others
4. The Elements of Style by Chlloway (Stephen)
5. Time Saver Standards for Urban Design by Donald Watson
6. Design Elements: Form & Space by Dennis M. Puhalla
7. Time saver standards for Landscape Architecture (II edition) by Charles W. Harris & Micholas T. Dines
8. The City Shaped - Urban Patterns and Meanings Through History by Spiro Kostof
9. The Urban Pattern by Gallion (B)

B.Arch, Semester-II, Iyr. (5 yrs Degree Course)

THEORY

Sr. Nos.	Code No.	Subjects	L	T	Exam. Hrs.	30% Mid Term Ass.				70% End Term Ass.	Min. Pass. Marks for 70%=45 %	Total Marks	Min. Pass. Marks =(45 %)	Credits
						Assignment 5	Mid Term 15	Attendance 10	Min. Pass. Marks for 30%=45 %					
1	2JAR1	Ecology & Environment	2	1	3	5	15	10	13	70	31	100	45	3
2	2JAR2	Construction Materials-II	2	1	3	5	15	10	13	70	31	100	45	3
3	2JAR3	Architectural Structures-II	2	1	3	5	15	10	13	70	31	100	45	3
4	2JAR4	Introduction To Architecture	2	1	2	5	15	10	13	70	31	100	45	3
		SUB TOTAL	8	4	11	20	60	40	52	280	124	400	180	12

SESSIONAL

Sr. Nos.	Code No.	Subjects	L	S	60% Mid Term Ass.				40 % End Term Ass.	Min. Pass. Marks for 40%=45 %	Total Marks	Min. Pass. Marks =(45 %)	Credits
					Assignment 40%	Mid Term 10 %	Attendance 10%	Min. Pass. Marks for 60%=45 %					
5	2JAR5	Architectural Drawing-II	1	3	100	25	25	67	100	45	250	112	4
6	2JAR6	Architectural Design (Basic Design & Field Trip)	1	3	40	10	10	27	40	18	100	45	4
7	2JAR7	Arts & Graphics-II	1	3	40	10	10	27	40	18	100	45	4
8	2JAR8	Building Construction-II	1	3	40	10	10	27	40	18	100	45	4
9	2JAR9	Introduction To Computer-II	1	2	40	10	10	27	40	18	100	45	3
10	2JAR10	Discipline & Extra Curricular Activities.	–	–	-	-	-	-	-	-	-	-	Non-Credit
		SUB TOTAL	5	14	260	65	65	175	260	117	650	292	19
		GRAND TOTAL	33 HRS./ WEEK								1050	525*	31

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Semester : **Second** **1st Year**

Subject Name : **ECOLOGY & ENVIRONMENT**

Subject Code : **2JAR1**

L	T/S	Exam Hrs.	30% Mid Term Assessment				70% End-Term Assessment	Min. Pass. Marks For 70% =(45%)	Total Marks	Min. Pass. Marks =(45%)	Credits
			Assignment 5	Mid-Term 15	Attendance 10	Min. Pass. Marks 30%=45%					
2	1	3	5	15	10	13	70	31	100	45	3

Objective : The Understanding and Application of Basic Ecology and Ecological Systems with reference to built environment

Unit I	**Ecosystems:** • Concept of eco-system, • Fundamental of eco-logy and ecosystem, • Components of ecosystem, • Food chain, food web, trophic levels, energy flow, cycling of nutrients, • Major ecosystem types (forest, grassland, and aquatic eco-system). • Fundamentals of Ecosystem, our Earth's Environment
Unit II	**Waste (Solid / Liquid / Gaseous):** Generated by Human Habitat and Treatment thereof (in Brief) **Air pollution:** • Atmospheric composition • Classification of air pollutants, • Source and effect of pollutants —green house effect, global warming, ozone depletion, atmospheric stability and temperature inversion etc. • Ambient air quality standards. • Architectural measures for reducing air pollution. **Water Conservation and Harvesting (in Brief):** **Water pollution:** • Hydrosphere, Natural water • Classification of water pollutants, trace elements, contamination of water, • Sources and effects of water pollution, types of pollutants • Determination and significance of DO, BOD and COD in waste water. • Eutrophication, methods and equipments used in waste water treatment (Preliminary, secondary and tertiary) • Architectural measures for reducing water pollution. **Land and noise pollution:** • Lithosphere, • Pollutants (agricultural, industrial, urban waste, hazardous waste)— their origin and effect. • Collection of solid waste, solid waste management, recycling and reduction of solid waste and their disposal techniques (open dumping, sanitary land filling, thermal, composting). • Noise pollution — definitions and causes. • Sources, effects, standards and control measures. • Architectural measures for reducing land and noise pollution.

Unit III	**Eco-friendly Architecture:** • Urban eco-system and rural ecosystems • Inter-relationship of manmade development with eco-processes. • Eco-friendly materials, • Eco-friendly energy systems. • Works of various architects who have worked in the field of eco-friendly architecture.
Unit IV	• Environmental Planning and Design Guidelines • Basics Concepts of Green Architecture • Geological aspects of Land strata for construction
Unit V	• Global environmental issues such as global Warming, Ozone depletion, green house effect etc. • Awareness about Natural and Built Heritage

Notes : Mid Term Exam shall be as of Unit I to III.
Sessionals will be in the form of drawings and models along with technical report for the subject dealt with. The evaluation should be done in intermediate reviews. There could be regular site visits to understand the ecosystems and eco-friendly architecture.

Exercise / Teaching Methodology
: Study of Relevant Ecosystem, Visit to sites different types of land terrains and study of flora and natural heritage, Projects on Environmental Protection both at Micro & Macro Level, Effects of Pollution and its Prevention, Visits to industrial / towns ships to understand environment and micro climate. Study of Traditional rain Water harvesting systems

Reference Books :

1. Miller T.G. Jr., Environmental Sciences, Wadsworth Publishing Co. (TB)
2. Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumbai, 1196p.
3. Hawkins.R.E, Encyclopedia of Indian Natural History, Bombay Natural History Sdociety, Bombay (R).
4. Heywood, V.H & Watson, R.T. 1995. Global Biodiversity Assesment. Cambridge Univ. Press 1140p.
5. McKinney, M.L & Schoch, R.M. 1996. Environmental Science System & Solutions, Web enhanced edition. 639p.
6. Trivedi R.K., Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards, Vol I and II, Enviro Media (R).
7. Encyclopaedia of Ecology and Environment (10 Vols Set) by P.R. Trivedi
8. Concepts of ecology by Kormondy Edward J
9. Environment Studies by Buruchha
10. Environmental Law by Sengar
11. Environmental of Ecology by Rana
12. Essentials of Ecology by Rana
13. Instant Notes Ecology by Mackenzie
14. Griha Manual (5 Volume Set)

Semester : **Second** **1st Year**

Subject Name : **CONSTRUCTION MATERIAL-II**

Subject Code : **2JAR2**

L	T/S	Exam Hrs.	30% Mid Term Assessment				70% End-Term Assessment	Min. Pass. Marks For 70% =(45%)	Total Marks	Min. Pass. Marks =(45%)	Credits
			Assignment 5	Mid-Term 15	Attendance 10	Min. Pass. Marks 30%=45%					
2	1	3	5	15	10	13	70	31	100	45	3

Objective : The Understanding and Application of Basic Building Materials

Unit I	In the context of material, study of The Nature of Materials, Structural, Visual and Textural Properties, The Manufacturing Process, Identification and Selection, Their Application in Buildings Mud
Unit II	Lime
Unit III	Cement
Unit IV	Sand
Unit V	Stone Grit

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Identification and Study of Relevant. I.S. Codes. Seminars and Preparation of Reports. Visits to Manufacturing Units are Desirable. Field Studies Should Preferably form an Integral Part of Tutorial Work

Reference Books :

1. Architecture & materials by Benitez Cristira C.
2. Building materials by Varghese P C
3. Engineering Materials by Rangwala
4. Introduction to Engineering Materials by Agarwal
5. Smart Materials in Architecture, Interior Architecture and Design by Axel Ritter
6. A Textbook of Strength of Materials by Dr. R.K. Bansal
7. Architecture Materials
8. Architecture Materials Words by Holz (Bois)
9. Architecture Materials Concrete
10. Architecture materials Glass
11. Mitchell's Materials by Alan Everett

Semester : **Second 1st Year**

Subject Name : **ARCHITECTURAL STRUCTURES-II**

Subject Code : **2JAR3**

L	T/S	Exam Hrs.	30% Mid Term Assessment				70% End-Term Assessment	Min. Pass. Marks For 70% =(45%)	Total Marks	Min. Pass. Marks =(45%)	Credits
			Assignment 5	Mid-Term 15	Attendance 10	Min. Pass. Marks 30%=45%					
2	1	3	5	15	10	13	70	31	100	45	3

Unit I	• Shear force and bending moment diagram for simply supported beam, cantilever beam, overhang beam (subjected to point load, U.D.L and point load/U.D.L.) • Point of contra flexure, • Member subjected to couple.
Unit II	• Theory of bending (simple and pure) • Bending equation, • Section modulus (only for Rectangular, hollow rectangular) • Shear stress distribution for rectangular beam section • Introduction of flitched beam. • Equation of flexure and its derivation; section modulus; distribution of normal stress due to bending
Unit III	Composite beams; shear stress distribution in rectangular, circular, T and I sections
Unit IV	Plane frames; components of plane frames; determination of forces in members by method of joints and graphical method
Unit V	Lifting machines; mechanical advantage; velocity ratio and efficiency of machines; law of machine; pulley and pulley blocks

Notes : Mid Term Exam shall be as of Unit I to III.
Sessionals work shall include assignments/tests on the above topics.
In theory examination there will be a separate question from each unit with choice within the unit/question. All units/questions will be compulsory.

Exercise / Teaching Methodology

Reference Books :

1. R.K. Bansal, A Text Book on Strength of Materials – Laxmi Publications, New Delhi, 1994.
2. B.C. Punmia, SMTS-I, Strength of Materials – Laxmi Publications, New Delhi, 1994.
3. M.M. Ratwani & V.N. Vazirani, Analysis of Structures, Vol. 1, Khanna Publishers – Delhi, 1987.
4. Timoshenko, S.P. and D.H. Young, Elements of Strength of Materials, Fifth edition, East West Press, 1993.
5. A.R. Jain and B.K.Jain, Theory and analysis of structures, Vol. 1, Nemchand and Bros, Roorkee, 1987.
6. R.K. Rajput ―Strength of Materials‖, S.Chand & Company Ltd., New Delhi 1996.
7. Strength of Materials by Khurmi R S
8. Steel Table by Agor R

Semester : **Second** **1st Year**

Subject Name : **INTRODUCTION TO ARCHITECTURE**

Subject Code : **2JAR4**

L	T/S	Exam Hrs.	30% Mid Term Assessment				70% End-Term Assessment	Min. Pass. Marks For 70% =(45%)	Total Marks	Min. Pass. Marks =(45%)	Credits
			Assignment 5	Mid-Term 15	Attendance 10	Min. Pass. Marks 30%=45%					
2	1	2	5	15	10	13	70	31	100	45	3

Objective : To Orient the Student to Study of Architecture as Profession and Design Discipline

Unit I	Role of an Architect in an Architectural Project and in society Through History; Disciplines and Skills to be learnt by an Architect
Unit II	Factors Influencing Architecture of a Place, Climate, Materials, Socio Cultural, Technological, Etc.
Unit III	Introduction to Old and New Architectural Works; Understanding to Old and New Architectural Works;
Unit IV	Understanding the Terms Such as Vernacular, traditional, Classical, Modern, Post Modern and Neo Modern Renaissance, European, Oriental;
Unit V	Vastu and its science.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology : Presentation of Observation at the Respective Native Places of Students. During Educational Trips/Site Visits. Visits to Buildings of Architectural Significance

Reference Books :

1. India Modern by Ypma (Herbert J M)
2. Indian Architecture by Murthy
3. Modern Architect by Hascher
4. New Classic Style by Ingham (Vicki L), James D Blume
5. Pr. of Modern Architecture by Schulz
6. Vaastu by Craze
7. Vastushastra-Vol.-III by Tarkhedkar (A.R.)
8. The Elements of Style by Chlloway (Stephen)
9. Masterpieces of Modern Architecture by M. Agnoletto
10. Modern Architecture Since 1990 by William I.R. Curtis
11. Design Dialog by Deshpande & Shireesh
12. Green is Red by Anil Laul
13. Vastu Vidya by Pegrum Juliet
14. Introduction to Architecture by D.K. Ching
15. Vastu for a Changing World by A. K. Jain
16. Vastu: How to Create a Harmonious Home through Ancient Indian Design Principles by Ashwinie Kumar Bansal

Semester : **Second** **1st Year**

Subject Name : **ARCHITECTURAL DRAWING-II**

Subject Code : **2JAR5**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	3	100	25	25	67	100	45	250	112	4

Objective : To Develop Drawing Skills as Tools to Thinking, Visualization, and Representation of Design.

Unit I	**Development of Surface:**
Unit II	**Perspective Drawings-I:** • Introduction to basic terms, principles, types and techniques of perspective drawings for expression of ideas. • Two point perspective of simple geometrical objects • One point perspective of simple geometrical objects **Perspective Drawings –II** • Two point perspective of complex geometrical objects and buildings • One point perspective of complex geometrical objects and building interiors/ exteriors. • Freehand perspective drawings with various techniques of buildings.
Unit III	**Sciagraphy-I** • Introduction to basic principles of Sciagraphy and its application on two dimensional objects in plans and elevations. **Sciagraphy-II** • Sciagraphy of three dimensional objects in plan, elevations and views (isometric, axonometric and perspective). • Sciagraphy of simple building elements **Practical applications:** • Development of perspective projections of buildings with sciagraphy and rendering techniques, multiple point perspectives.
Unit IV	**Graphical Presentation**
Unit V	**Surface development for massing models**

Notes : Mid Term Exam shall be as of Unit I to III.

Sessionals are to be done in the form of drawings on drawing sheets and proportionate sketches on above topics. Sessional will be evaluated continuously in class.

Exercise / Teaching Methodology

: Studio Assignments Based On Above Topics.

Reference Books :

1. Francis Ching, Architectural Graphics, Van Nostrand and Reinhold Company, NY 1975/ New York, 1964.
2. IH. Morris, Geometrical Drawing for Art Students - Orient Longman, Madras, 2004.
3. George K.Stegman, Harry J.Stegman, Architectural Drafting Printed in USA by American Technical Society, 1966.
4. C.Leslie Martin, Architectural Graphics, The Macmillan Company, New York, 1964.
5. Bhatt N.D., Engineering Drawing, India, 2011.
6. Architectural Rending by Rendow Yee
7. Engineering Drawing by Bhatt (N D) & Others
8. Engineering Drawing, J by Jolhe
9. Engineering Drawing and Design by Madsen (David A.)
10. Engineering Drawing and Graphics by Venugopal (K.)
11. Understanding Construction Drawing Single And mu. by Mark W. Huth
12. Design Drawing by Francis D.K. Ching
13. Building Drawing by MG Shah
14. Architectural Drawing and Light const. by Muller
15. Architectural Drawing by Reendow Yee
16. Drawing a Creative Process by D.K. Ching

Semester : **Second 1st Year**

Subject Name : **ARCHITECTURAL DESIGN (Basic Design & Field Trip)**

Subject Code : **2JAR6**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	3	40	10	10	27	40	18	100	45	4

Unit I	Principles of Aesthetics and introduction to aesthetical terms like form, balance, rhythm, harmony, texture, color, symmetry, contrast, discord, accentuation, monotony etc.
Unit II	Introduction of Architectural design with an approach of functional understanding and analysis of problems with studies of space requirement for different furniture (objects), activities and circulation, Relationship between occupied and unoccupied spaces.
Unit III	Design of small shelters and study of multi units involving 3 to 4 functional spaces, Natural and manmade objects of functional and aesthetic value. Aspects of area determination in conjunction with relevant building Bye Laws and area relationship.
Unit IV	Case studies for measured drawing of small buildings and furniture. Introduction of presentation drawings. Small views (isometric and perspective) of the studied building.
Unit V	Study and design of small structures like ceremonial gates, temporary exhibition stalls, kiosks, bus stop, small pavilions etc.

Notes : Mid Term Exam shall be as of Unit I to III.

Sessionals shall be in the form of drawings and models.

One time problems (as class tests) is to be conducted in class other than regular design problems

Exercise / Teaching Methodology :

Reference Books :

1. Form, Space & Order by Francis D. K. Ching
2. Time Saver Standards for Building Types by Dechiara & Others
3. The Elements of Style by Chlloway (Stephen)
4. Time Saver Standards for Urban Design by Donald Watson
5. Design Elements: Form & Space by Dennis M. Puhalla
6. Time saver standards for Landscape Architecture (II edition) by Charles W. Harris & Micholas T. Dines
9. The City Shaped - Urban Patterns and Meanings Through History by Spiro Kostof
10. The Urban Pattern by Gallion (B)

Semester : **Second 1st Year**

Subject Name : **ARTS AND GRAPHICS-II**

Subject Code : **2JAR7**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	3	40	10	10	27	40	18	100	45	4

Objective : Development of Graphic Skills, Ability and Comprehension. Establishing Significance of Art.

Unit I	Principle of art and design study (Rhythm / Balance / Contrast / Harmony etc.)
Unit II	2D compositions in different mediums (Poster Color / Water Color / Pencil Color)
Unit III	2D to 3D development compositions (Paper / Cardboard / Wire Mash etc.)
Unit IV	Exploration in different mediums (Clay / Wood / POP / MDF etc.)
Unit V	Introduction to Indian history of art artistic tradition and theories Major art styles of Indian art with cultural reference, techniques i.e. miniature paintings, fresco paintings etc.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: 2D Compositions in Various Colour Mediums (Use of water Colour, Dry pastels, Oil Pastels, Poster Colours, Pencil colors, Crayons etc), Textures. 3D compositions in Plaster of Paris, Clay, Paper, Cardboard etc.

Reference Books :

1. Water Colour by Mulick (Milind)
2. Sketch Book by Mulick (Milind)
3. Rendering with Pen +Ink by Gill (Robert W)
4. Color in Sketching and Rendering by Guptill
5. Monographs by Lalit Kala Academy, New Delhi

Semester : **Second 1st Year**
Subject Name : **BUILDING CONSTRUCTION-II**
Subject Code : **2JAR8**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	3	40	10	10	27	40	18	100	45	4

Objective : The Construction Studio Work Should Demonstrate the Inter Dependence of the building Materials and Elements and their Understanding to Form Complete Building Envelop.

Unit I	**Doors:** **a) Timber:** • Ledged braced and battened door • Panel door • Glazed door • Flush door • Sliding folding doors in wood **b) Metal:** • Pressed steel • 'Z' section, with and without fanlight. • Swing doors
Unit II	**Windows:** **a) Timber:** • Side and Top hung • Pivoted • Louvers • Ventilators • Fixed and openable fanlights. • Composite window. **b) Metal:** • Pressed steel • 'Z' section, • Top and side hung, fixed • Pivoted • Louvers • Ventilators
Unit III	**a) Timber Floors:** • Single • Double • Triple • Various joints between joists, lengthening of wall plates, etc. • Herring bone and solid strutting. **b) Timber Canopies, Staircase & Balconies:** **Canopies:** • Designing of Porch, Canopies in Timber. • Designing of Covered ways in Timber.

	• Fixing details of lighting fixtures, rain water drainage systems, etc. in canopy. **Balconies and Stairs:** • Balconies in Timber. • Steel balconies. • Stairs (timber).
Unit IV	**Timber Roofs:** • Lean to type • Couple • Close couple • Collar. **Timber trussed roofs:** • King post • Queen post • Built up roof truss.
Unit V	**Opening accessories:** • Jamb casing • Architrave • Palmate • Moldings • Skirting • Door and window fixtures. • Door cum window in timber and metal.

Notes **:**
1. Mid Term Exam shall be as of Unit I to III.
2. There shall be regular site visits to buildings, under construction or constructed, to explain the above topics. Use of audio-visuals should be stressed.
3. Sessional work shall be done as scaled drawing on drawing sheets and freehand drawings along with occasional visits to construction sites.

Exercise / Teaching Methodology
: Site Visits Should form an Integral Part of the Studio Work. Preparation of Drawings, Site Reports and other Exercises Covering the above.

Reference Books **:**

1. W.B. McKay, ―Building Construction‖ Vol, 1 and 2, Longmans, UK, 1981.
2. S.C Rangwala ―Building Construction‖ Charotar Publishing House, India, 2000
3. Francis D.K Ching Building Construction illustrated, John Willey & Sons, 2000
4. Barry, Construction of Buildings, Volume 1&2, Blackwell Publishing Ltd., Oxford, 2005
5. Building Construction by Varghese
6. Barry's Introduction to Construction of Buildings by Stephen Emmitt & Christopher Gorse
7. Handbook of Building Construction Vol-II by M M Goyal
8. Building construction illustrated by Ching
9. Building Constructions by Rangwala (S.C.)
10. Building Construction by Rangwala
11. Building Constructions Illstrated by Ching (Francis D K)
12. The Text Book of Building Construction by Bindra Arora
13. The Construction of Buildings by Barry R
14. Bulding Construction by Punmia B C
15. Bulding Construction Hand Book by Chudley & Other
16. Building Construction Vol. I-IV by Mckay W.B.
17. Carpentry and Building Construction by Feirer & Hutchings
18. Building Construction by Sushil Kumar
19. Mitchell's Introduction to Building by Roger Greeno & Derek Osbourn

Semester : **Second** **1st Year**

Subject Name : **INTRODUCTION TO COMPUTER–II**

Subject Code : **2JAR9**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	2	40	10	10	27	40	18	100	45	3

Objective : Develop Awareness of Computer And its Environment.

Unit I	Computer as a tool for Architects. Introduction to Various Softwares Relevant to Architects Viz. Auto CAD
Unit II	3DS Max
Unit III	CorelDraw, Adobe Photoshop
Unit IV	MS Power point, PageMaker etc.
Unit V	Advanced Internet Applications.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Assignments Related to Various Applications of These Software. Preparing Power point presentations, Using Google Earth.

Reference Books :

1. Mastering Autocad Civil 3d by Prober
2. Autocad 2009 by Bible
3. Cad Principles by Szalapai
4. Digital Photography an Introduction by Ang (Tom)
5. Learing Photoshop CS3 byBangia
6. Let Us C by Kanetkar Yashavant
7. Photoshop CS3 Bible by Doyle
8. Photoshop CS3 Simple Steps by Kogent

B.Arch, Semester-III, IIyr. (5 yrs Degree Course)

THEORY

Sr. Nos.	Code No.	Subjects	L	T	Exam. Hrs.	30% Mid Term Ass.				70 % End Term Ass.	Min. Pass. Marks for 70%=45%	Total Marks	Min. Pass. Marks =(45 %)	Credits
						Assignment 5	Mid Term 15	Attendance 10	Min. Pass. Marks for 30%=45%					
1	3JAR1	History of Architecture-I	2	1	3	5	15	10	13	70	31	100	45	3
2	3JAR2	Building Science-I (Climatology)	2	1	3	5	15	10	13	70	31	100	45	3
3	3JAR3	Construction Materials-III	1	1	3	5	15	10	13	70	31	100	45	2
4	3JAR4	Architectural Structures-III	2	1	2	5	15	10	13	70	31	100	45	3
		SUB TOTAL	7	4	11	20	60	40	52	280	124	400	180	11

SESSIONALS

Sr. Nos.	Code No.	Subjects	L	S	60% Mid Term Ass.				40 % End Term Ass.	Min. Pass. Marks for 40%=45 %	Total Marks	Min. Pass. Marks =(45 %)	Credits
					Assignment 40%	Mid Term 10 %	Attendance 10%	Min. Pass. Marks for 60%=45 %					
5	3JAR5	Architectural Design-I	_	8	100	25	25	67	100	45	250	112	8
6	3JAR6	Theory of Design-I	1	1	40	10	10	27	40	18	100	45	2
7	3JAR7	Arts & Graphics-III	1	2	40	10	10	27	40	18	100	45	3
8	3JAR8	Building Construction-III	1	3	40	10	10	27	40	18	100	45	4
9	3JAR9	Structure Lab.-I	-	2	40	10	10	27	40	18	100	45	2
10	3JAR10	Computer Application in Architecture-I	1	2	40	10	10	27	40	18	100	45	3
11	3JAR11	Discipline & Extra Curricular Activities	–	–	-	-	-	-	-	-	-	-	Non-Credit
		SUB TOTAL	4	18	300	75	75	202	300	135	750	337	22
		GRAND TOTAL	32 HRS./ WEEK								1150	575*	33

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Semester : **Third** **2nd Year**

Subject Name : **HISTORY OF ARCHITECTURE -I**

Subject Code : **3JAR1**

L	T/S	Exam HRS.	30% Mid Term Assessment				70% End-Term assessment	Min. pass. marks for 70% =(45%)	Total Marks	Min. Pass. Marks =(45%)	Credits
			Assignment 5	Mid-Term 15	Attendance 10	Min. pass. marks 30%=45%					
2	1	3	5	15	10	13	70	31	100	45	3

Objective : To Develop understanding of social, material and structural attributes, That shaped and architecture in different periods, also to study how interaction and communication with different cultures influenced and reshaped Architecture of India.

Unit I	**Architecture of different times:** • Indus valley and Vedic civilization
Unit II	Brief about *Sthaptya Kala* as in ancient Indian texts
Unit III	**Buddhist Architecture.** • Development at Asian level (China, Japan, SE Asia, Afghanistan etc.) • Indian examples and influences.
Unit IV	Hindu empires (with emphasis on Northern, Central and Southern style of temples)
Unit V	Indo Islamic architecture: basic features, Study of various indo Islamic styles in chronological order In terms of design parameters such as cross cultural theories relating to art and architecture construction methods etc.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Analytical And illustrative exercises related to above topics such as papers Seminars etc.

Reference Books :

1. History of Architecture by G.K. Hiraskar
2. A Global History of Architecture by Francis D.K. Ching
3. A History of Architecture by Fletcher Baister
4. Buddhist and Hindu Architecture in India by Satish Grover
5. The Oral History of Modern Architecture by Peter
6. Indian Architecture (Buddhist and Hindu) by Percy Brown
7. Modern Architecture in India by Sarbjit Bahga
8. Indian Architecture (Islamic Period) by Percy Brown
9. Architecture in India by Electa Moniteur
10. Islamic Architecture of India by Grover
11. The Architecture of India by Adam Hardy
12. Architecture in India Since 1990 by Rahul Mehrotra
13. The Great Ages of World Architecture by Hiraskar G K
14. World Architecture the Master Work by Pryce (Will)
15. History of Architecture by Abhishek Publications Chandigary
16. Islamic Architecture by Robert Hillenbrand

Semester : **Third** **2nd Year**

Subject Name : **BUILDING SCIENCE–I (CLIMATOLOGY)**

Subject Code : **3JAR2**

L	T/S	Exam HRS.	30% Mid Term Assessment				70% End-Term assessment	Min. pass. marks for 70% =(45%)	Total Marks	Min. Pass. Marks =(45%)	Credits
			Assignment 5	Mid-Term 15	Attendance 10	Min. pass. marks 30%=45%					
2	1	3	5	15	10	13	70	31	100	45	3

Objective : Understanding of inter relation of built environment with material environment Also issues of climatic balance in traditional and contemporary built Environments.

Unit I	**Elements of climate:** • Constituents of climate, definition. • Measurement and Data collection with use of meteorological data, solar charts etc. • Classification of climate on global level and national level • Study of Microclimate and Macroclimate. • Effect of climate on man, shelter and environment
Unit II	**Principles of thermal comfort:** • Physiological impact of climate. • Comfort indices. Human comfort conditions – Comfort chart, Comfort Zone, Effective temperature, etc. • Natural and artificial methods of achieving thermal comfort — landscaping, building materials (U-values) etc.
Unit III	**Parameters of comfort conditions:** • Ventilation and air movement — spatial organization in buildings, layout and orientation of buildings in housing. • Natural Illumination and day lighting. • Artificial illumination and night lighting.
Unit IV	**Climate conscious design-I**: • Introduction to traditional design measures / Vernacular architecture in various climates at Global level. • Architectural design considerations in various climatic zones in India-hot dry, warm humid, cold dry, cold humid, temperate, composite etc. • Effects of climate on building envelope: heat flow, heat transfer
Unit V	**Climate conscious design-II:** • Use of different design aids at various climatic conditions • Study of materials and construction techniques for climate conscious design. • Case studies of climate conscious designs. • Application of wind and solar oriented architecture, introduction to climate oriented software and other analytical techniques. • Passive means of thermal control Solar movement and sun shading devices.

Notes : Mid Term Exam shall be as of Unit I to III.

Course would be run through lectures, Audiovisuals and site visits to various laboratories and buildings.

Sessional shall be in the form of reports, seminars, and design solutions on different units. The works of various building science laboratories be referred and discussed.

In theory examination there will be a separate question from each unit with choice within the unit/question. All units/questions will be compulsory.

Exercise / Teaching Methodology

: Analytical and illustrative exercises, related to above topics.

Reference Books :

1. O.H. Koenigsberger and others (1993), Manual of Tropical Housing and Building – Part I - Climate design, Orient Longman, Madras, India.
2. Climate Responsive Architecture by Arvind / Krishan
3. Climate Responsive Architecture by Arvind Krishan
4. Climatology by D.S. Lal
5. Manual of Tropical Housing & Building by Koenigsberger
6. Modern Tropicl Garden Design by Wijaya (Made)
7. Tropical Architecture by Tzonics
8. Tropical Sustainable Architecture by Joo-Hwa Bay & Boon-Lay Ong
9. Dynamics Daylight Architecture by Helmut Korter
10. Solar Energy Principles and Application by N.D. Kaushik

Semester : **Third** **2nd Year**

Subject Name : **CONSTRUCTION MATERIAL-III**

Subject Code : **3JAR3**

L	T/S	Exam HRS.	30% Mid Term Assessment				70% End-Term assessment	Min. pass. marks for 70% =(45%)	Total Marks	Min. Pass. Marks =(45%)	Credits
			Assignment 5	Mid-Term 15	Attendance 10	Min. pass. marks 30%=45%					
1	1	3	5	15	10	13	70	31	100	45	2

Objective : To introduce and familiar student with/to composite and multiple application of materials.

Contents : Study of physical, chemical, visual and textural properties of materials their Application and use in building and building components as applied in buildings.

Unit I	Cement product: **Mortars, concrete and R.C.C.** preparation, application techniques, tests concreting under special conditions, special varieties of concretes.
Unit II	Plastics,
Unit III	Glass
Unit IV	Derivatives of Wood
Unit V	Ply's and Boards

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: The course may be conducted as core lecture, case studies, site visits and market Surveys. Interaction with field personal and demonstration sessions.

Site visit report, seminars and reports of survey and case studies. Emphasis Should be on application techniques.

Reference Books :

1. Architecture & materials by Benitez Cristira C.
2. Building materials by Varghese P C
3. Engineering Materials by Rangwala
4. Introduction to Engineering Materials by Agarwal
5. Smart Materials in Architecture, Interior Architecture and Design by Axel Ritter
6. A Textbook of Strength of Materials by Dr. R.K. Bansal
7. Architecture Materials
8. Architecture Materials Words by Holz (Bois)
9. Architecture Materials Concrete
10. Architecture materials Glass
11. Mitchell's Materials by Alan Everett

Semester : **Third** **2nd Year**

Subject Name : **ARCHITECTURAL STRUCTURES-III**

Subject Code : **3JAR4**

L	T/S	Exam HRS.	30% Mid Term Assessment				70% End-Term assessment	Min. pass. marks for 70% =(45%)	Total Marks	Min. Pass. Marks =(45%)	Credits
			Assignment 5	Mid-Term 15	Attendance 10	Min. pass. marks 30%=45%					
2	1	2	5	15	10	13	70	31	100	45	3

Objective :

Unit I	Calculation of slope and deflections in determinate beams using, Double integration method and Moment area method.
Unit II	Long and short columns or struts; slenderness ratio; buckling load; various end conditions and effective lengths; struts with eccentric loading; struts with initial curvature; Assumptions and limitations of EULER theory; Rankine Gordon formula; crippling and crushing load calculations for struts using Euler and Rankine formula.
Unit III	Soil and soil mass constituents; Introduction to three phase diagram and two phase diagrams; water content; specific gravity; void ratio; porosity; degree of saturation; air voids and air content; unit weights; density index etc. Inter -relationships of the above.
Unit IV	Determination of water content and specific gravity; particle size distribution; sieve and sedimentation analysis; consistency limits; void ratio and density index; classification of soil for general engineering purposes as per IS -classification.
Unit V	Bearing capacity of soils; types of shear failures in soil; shallow foundation; relation for depth of foundation; TERZAGHI's theory, formula and limitations; Meyerhof's formula; plate loading test; standard penetration test.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

Reference Books :

1. Strength of Materials by Khurmi R S
2. Steel Table by Agor R

Semester : **Third** **2nd Year**

Subject Name : **ARCHITECTURAL DESIGN–I**

Subject Code : **3JAR5**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks For 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
-	8	100	25	25	67	100	45	250	112	8

Objective :

Content : Objective analysis of activities and spaces in a given predomination function; It's representation in graphic form.

Design exercise evolving out of single function such as ticket counters/reception offices, security offices, Kiosks, booths, Information Cells, small residences, farm house etc.

Multiple function such as primary health centers, convenient shopping etc. As least one design problem to concentrate on comprehensive graphic representation to form a prelude to measure drawing.

Notes :

Exercise / Teaching Methodology :

Reference Books :

1. Residential Style by Boekel (Andrea)
2. Design for Shopping by Sara Manvelli
3. Health care Space vol.4 by Roger Yee
4. Architecture for Healthcare by Andrea Boekel
5. Malls & Department Store by Chris Van Uffelen
6. Time Saver Standards for Building Types by Dechiara & Others
7. The Elements of Style by Chlloway (Stephen)
8. Time Saver Standards for Urban Design by Donald Watson
9. Design Elements: Form & Space by Dennis M. Puhalla
10. Time saver standards for Landscape Architecture (II edition) by Charles W. Harris & Micholas T. Dines
11. The City Shaped - Urban Patterns and Meanings Through History by Spiro Kostof
12. The Urban Pattern by Gallion (B)

Semester : **Third** **2nd Year**

Subject Name : **THEORY OF DESIGN–I**

Subject Code : **3JAR6**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks For 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	1	40	10	10	27	40	18	100	45	2

Objective : To Introduce the elements; principles and objective in orientation to Architectural Design.

Unit I	Formulation of design concepts through elements and principles of architectural Design.
Unit II	Study of space usage and its implications. Classification of spaces, Inter dependence of Form, Structure, Function and Space, Relationship of Plan, Section and Elevation.
Unit III	Architectural Scale as manifestation of functional requirements. Appreciating Architecture through important building examples.
Unit IV	Awareness about Vastu Principals. Space as architectural raw material.
Unit V	Structure and Form Architectural Programming.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Developing architectural programs for simple design exercises like house, play school, dispensary etc.

Reference Books :

1. The Elements of Style by Chlloway (Stephen)
2. Vaastu by Craze
3. Vastushastra-Vol.-III by Tarkhedkar (A.R.)
4. An Introduction to Architectural Theory by Mallgrave
5. Design Dialog by Deshpande & Shireesh
6. Green is Red by Anil Laul
7. Vastu for a Changing World by A. K. Jain
8. Vastu: How to Create a Harmonious Home through Ancient Indian Design Principles by Ashwinie Kumar Bansal

Semester : **Third** **2nd Year**

Subject Name : **ARTS & GRAPHICS-III**

Subject Code : **3JAR7**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks For 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	2	40	10	10	27	40	18	100	45	3

Objective : Develop the understanding the graphics skills, scale and proportion and nature of different materials.

Unit I	Emphasis is to be laid on graphic skill/presentation techniques/model making etc.
Unit II	Indoors and outdoors sketching in pencil/ crayons/ color/ charcoal/ ink of objects/ building/ automobiles/ vegetation/ human figure etc.
Unit III	Sculpture/ mural exercises in clay/ POP/ ceramics/ metal/ junk and scrap material etc.
Unit IV	Study of 3D forms and spaces with basic principles of design like repetition, symmetry, rotation and rhythm.
Unit V	Study of various color scales.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

Reference Books :

1. Ancient Greece Art, Architecture and History by Marina Belozerskaya and Kenneth Lapatin
2. Art + Architecture by Ivan Margolius
3. Art and Architecture of Post-Gupta Period by Himani Khanna
4. Art Deco by Duncan (Alastair)
5. Water Colour by Mulick (Milind)
6. Sketch Book by Mulick (Milind)
7. Rendering with Pen +Ink by Gill (Robert W)
8. Color in Sketching and Rendering by Guptill
9. Monographs by Lalit Kala Academy, New Delhi

Semester : Third 2nd Year
Subject Name : BUILDING CONSTRUCTION-III
Subject Code : 3JAR8

L	T/S	60% Mid Term Assessment			Min. Pass. Marks For 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	3	40	10	10	27	40	18	100	45	4

Unit I	Emphasis should be laid on understanding of constructions in R.C.C. in different part of building through basic building elements.
Unit II	**Foundation I:** • R.C.C. column footings, • Foundations for workshops and machines. • Formwork of foundation with column. **Foundation II:** • Raft foundations, • Grillage foundations. • Special Foundations, shallow foundations.
Unit III	Structure: Simple R.C.C. Frame with beams and columns & Slab.
Unit IV	Roof: Flat R.C.C. roof with water proofing details study of different R.C.C. roof forms and its connection with structure.
Unit V	**Staircases & Ramps:** • Types of staircases • Detail of R.C.C. • R.C.C. ramps. • Formwork of Staircases & Ramps.

Notes :
1. Mid Term Exam shall be as of Unit I to III.
2. There shall be regular site visits to buildings, under construction or constructed, to explain the above topics. Use of audio-visuals should be stressed.
3. Sessional work shall be done as scaled drawing on drawing sheets and freehand drawings along with occasional visits to construction sites.

Exercise / Teaching Methodology :

Reference Books :

1. Building Construction by Varghese
2. Barry's Introduction to Construction of Buildings by Stephen Emmitt & Christopher Gorse
3. Handbook of Building Construction Vol-II by M M Goyal
4. Building construction illustrated by Ching
5. Building Constructions by Rangwala (S.C.)
6. Building Construction by Rangwala
7. Building Constructions Illstrated by Ching (Francis D K)
8. The Text Book of Building Construction by Bindra Arora
9. The Construction of Buildings by Barry R
10. Bulding Construction by Punmia B C
11. Bulding Construction Hand Book by Chudley & Other
12. Building Construction Vol. I-IV by Mckay W.B.
13. Carpentry and Building Construction by Feirer & Hutchings
14. Building Construction by Sushil Kumar
15. Mitchell's Introduction to Building by Roger Greeno & Derek Osbourn.

Semester : **Third** **2nd Year**

Subject Name : **STRUCTURE LAB – I**

Subject Code : **3JAR9**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks For 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
-	2	40	10	10	27	40	18	100	45	2

Objective :

1.	To determine fineness modulus of fine aggregate	Sieve Shaker and Sieve sets
2.	To determine fineness modulus of coarse aggregate.	Sieve Shaker and Sieve sets
3.	To determine specific gravity of : **MMM.** Coarse Agg. II. Fine Agg. III. Sand IV. Soil	Pycnometer and Weigh Balance
4.	To determine moisture content of : **MMM.** Coarse Agg. II. Fine Agg. III. Sand IV. Soil	Oven and Weighing Balance
5.	To determine water absorption of Brick	Oven and Weighing Balance
6.	To determine compressive strength of brick	Compression Testing Machine
7.	To determine Impact value of coarse Agg.	Aggregate Impact Value Testing Machine
8.	To determine the Grain size distribution of soil	Sieve sets

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

:

Reference Books :

1. Strength of Materials by Khurmi R S
2. Steel Table by Agor R

Semester : **Third** **2nd Year**

Subject Name : **COMPUTER APPLICATION IN ARCHITECTURE-I**

Subject Code : **3JAR10**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks For 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	2	40	10	10	27	40	18	100	45	3

Objective : To apprise the students of the existing Presentation related softwares like word processors, drawing tools and photo editors etc.

Unit I	Application of Word processors. Available contents and tools in the latest versions of popular softwares like MS Word, Lotus, Pagemaker etc. Special emphasis on drawing tools in the softwares. Introduction to various presentation linked softwares like MS Power point, Corel Draw and Photoshop and their usage.
Unit II	Application of AutoCAD. Available contents and tools in the latest versions of the same. Special emphasis on drawing tools in the softwares.
Unit III	Introduction to various 2D and 3D tools and drawing of plans, elevations, sections through AutoCAD software.
Unit IV	Drafting simple geometrical objects & plans in 2 dimensions.
Unit V	Usage and understanding of Peripheral Hardware like Printers and Scanner.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Drafting letters, reports on MS Word, Drawing basic geometrical objects and coloring them. Making simple presentation and animations in MS Power Point, Scanning images and modifying them in Photoshop and transferring in different allied software's.

Reference Books :

1. Mastering Autocad Civil 3d by Prober
2. Autocad 2009 by Bible
3. Cad Principles by Szalapai
4. Digital Photography an Introduction by Ang (Tom)
5. Learing Photoshop CS3 byBangia
6. Photoshop CS3 Bible by Doyle
7. Photoshop CS3 Simple Steps by Kogent

B.Arch, Semester-IV, IIyr. (5 yrs Degree Course)

THEORY

Sr. Nos.	Code No.	Subjects	L	T	Exam. Hrs.	30% Mid Term Ass.				70 % End Term Ass.	Min. Pass. Marks for 70%=45%	Total Marks	Min. Pass. Marks =(45 %)	Credits
						Assignment 5	Mid Term 15	Attendance 10	Min. Pass. Marks for 30%=45%					
1	4JAR1	History of Architecture-II	2	1	3	5	15	10	13	70	31	100	45	3
2	4JAR2	Surveying	1	1	3	5	15	10	13	70	31	100	45	2
3	4JAR3	Construction Materials-IV	1	1	3	5	15	10	13	70	31	100	45	2
4	4JAR4	Architectural Structures-IV	2	1	2	5	15	10	13	70	31	100	45	3
		SUB TOTAL	6	4	11	20	60	40	52	280	124	400	180	10

SESSIONALS

Sr. Nos.	Code No.	Subjects	L	S	60% Mid Term Ass.				40 % End Term Ass.	Min. Pass. Marks for 40%=45%	Total Marks	Min. Pass. Marks =(45 %)	Credits
					Assignment 40%	Mid Term 10 %	Attendance 10%	Min. Pass. Marks for 60%=45 %					
5	4JAR5	Architectural Design-II (Including Measured Drawing camp)	_	8	100	25	25	67	100	45	250	112	8
6	4JAR6	Theory of Design-II	1	1	40	10	10	27	40	18	100	45	2
7	4JAR7	Arts & Graphics-IV	1	2	40	10	10	27	40	18	100	45	3
8	4JAR8	Building Construction-IV	1	3	40	10	10	27	40	18	100	45	4
9	4JAR9	Computer Application in Architecture-II	1	2	40	10	10	27	40	18	100	45	3
10	4JAR10	Surveying Lab	_	2	40	10	10	27	40	18	100	45	2
11	4JAR11	Discipline & Extra Curricular Activities	–	–	-	-	-	-	-	-	-	-	Non-Credit
		SUB TOTAL	4	18	300	75	75	202	300	135	750	337	22
		GRAND TOTAL	32 HRS./ WEEK								1150	575*	32

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Semester : **Fourth** **2nd Year**

Subject Name : **HISTORY OF ARCHITECTURE-II**

Subject Code : **4JAR1**

L	T/S	Exam Hrs.	30% Mid Term Assessment				70% End-Term Assessment	Min. Pass. Marks For 70% =(45%)	Total Marks	Min. Pass. Marks =(45%)	Credits
			Assignment 5	Mid-Term 15	Attendance 10	Min. Pass. Marks 30%=45%					
2	1	3	5	15	10	13	70	31	100	45	3

Objective : To develop understanding of architecture as society's primary response to simple needs and problems related to shelter and complete problems related to natural and man made environment both in qualitative and quantitative terms, also to understand evolution of Architectural Styles as response to prevalent socio-cultural, technological and intellectual complexities of societies.

Unit I	Study of evolution of design concepts, philosophy construction techniques, materials and structural solutions with the help of selected examples, with reference to social, cultural, geographical political and intellectual climate of the place and period.
Unit II	**Western Classical Architecture** —Greek and Roman (with examples from temples, public buildings, palaces etc.) • Orders • Visual Corrections • Construction techniques **Egyptian Architecture** • Mastaba and tombs • Pyramids • Temples **West Asiatic Architecture** • Sumerian • Assyrian • Babylonian
Unit III	Greek, Roman, Romanesque
Unit IV	**Christian Architecture (Churches)** • Early Christian • Byzantine
Unit V	**Romanesque and Gothic (Churches)** • Study of various European styles with construction techniques, aesthetical principles, architectural philosophy.

Notes : Mid Term Exam shall be as of Unit I to III.

The discussions should be based on selected examples highlighting the aesthetical values, architectural features, construction techniques, materials used and philosophy of construction.

Exercise / Teaching Methodology:

Reference Books :

1. Sir Banister Fletcher, A History of Architecture, University of London, The Antholone Press, 1996.
2. Percy Brown, Indian Architecture (Buddhist and Hindu Period), Taraporevala and Sons, Bombay, 1983.
3. History of Architecture by G.K. Hiraskar
4. A Global History of Architecture by Francis D.K. Ching
5. The Oral History of Modern Architecture by Peter
7. Modern Architecture in India by Sarbjit Bahga
8. Architecture in India by Electa Moniteur
9. The Architecture of India by Adam Hardy
10. Architecture in India Since 1990 by Rahul Mehrotra
11. The Great Ages of World Architecture by Hiraskar G K
12. World Architecture the Master Work by Pryce (Will)
13. History of Architecture by Abhishek Publications Chandigary

Semester : **Fourth** **2nd Year**

Subject Name : **SURVEYING**

Subject Code : **4JAR2**

L	T/S	Exam Hrs.	30% Mid Term Assessment				70% End-Term Assessment	Min. Pass. Marks For 70% =(45%)	Total Marks	Min. Pass. Marks =(45%)	Credits
			Assignment 5	Mid-Term 15	Attendance 10	Min. Pass. Marks 30%=45%					
1	1	3	5	15	10	13	70	31	100	45	2

Objective :

Unit I	**Introduction of surveying:** • Aspects of surveying for the Architect. • Formulae used in measurement of land with geometrical and abstract configurations to work out Areas, volumes and other quantities. **Introduction** Principles and classification of survey, Basic measurements in surveying, Basic methods of surveying, Different types of transverse. **Chain Survey** Introduction, Instruments, Types of chains and tapes, their uses and construction details. **Compass Survey** Introduction, Different type of compass, Meridians, Bearings, Dip, Declination, Local attraction, Adjustment of angles, Loose needle and fast needle method. Compass transverse.
Unit II	**Chain survey:** • Instrument used. • Selection of survey station. • Chain line, Offset, oblique offset, tie line, check lines, ranging. • Field book plotting.
Unit III	**Leveling and Contouring** Basic definitions, Types of leveling, sources of errors, Computations & Permanent adjustment of levels, Contouring and Earth work calculations. **Leveling:** • Various parts of dumpy level. • Temporary adjustment. • Interrelationship of bubble tube axis. • Line of collimation and vertical axis. • Leveling staff, technical term used in leveling. • Fly leveling (study of reciprocal leveling). • Introduction of contouring. **Theodolite Survey** Introduction, Basic definitions, Construction details, Temporary adjustment, Measurement of vertical and horizontal angle, Area computations by planimeter.
Unit IV	**Plain table surveying:** • Introduction. • Equipment required. • Working with plain table.

	• Errors in plain table. • Advantage and disadvantage. **Plane Table Surveying** Elements of plane table survey, Plane table transverse. **Total Station** Introduction and basics of using total station for field survey
Unit V	**Construction surveying:** • Introduction. • Equipment for setting out. • Horizontal and vertical control. • Setting out a pipe line. • Setting out a building and structure (complete layout). • Staking out a highway. **Setting out works for Buildings** Introduction, Controls for setting out, horizontal control, Vertical control, setting out in vertical direction, Positioning of a structure, Setting out of foundation trenches.

Notes : Mid Term Exam shall be as of Unit I to III.
Class work and fieldwork of the above subject should be oriented towards the layout of buildings and preparation of measured drawings. Students should also be taken to site visits for explaining the practical aspects of surveying.
Sessional work should include reports, drawings, and experiments etc. in assignment seminar form.
In theory examination there will be a separate question from each unit with choice within the unit/question. All units/questions will be compulsory.

Exercise / Teaching Methodology :

Reference Books :

1. B.C.Punmia – Surveying Vol.I – Standard Book House, New Delhi – 1983.
2. P.B.Shahani – Text of surveying Vol.I, Oxford and IBH Publishing Co – 1980
3. Fundamentals of Surveying by Roy
4. Surveying by K.R. Arora
5. Surveying and Leveling by Bhavikatti (S.S.)
6. Surveying vo. 1-5 by Punmia
7. The Hand Book of Lighting Surreys & Audits by Fetters (John L.)
8. The Home Owner's Survival Manual by Arch

Semester : **Fourth** **2nd Year**

Subject Name : **CONSTRUCTION MATERIALS-IV**

Subject Code : **4JAR3**

L	T/S	Exam Hrs.	30% Mid Term Assessment				70% End-Term Assessment	Min. Pass. Marks For 70% =(45%)	Total Marks	Min. Pass. Marks =(45%)	Credits
			Assignment 5	Mid-Term 15	Attendance 10	Min. Pass. Marks 30%=45%					
1	1	3	5	15	10	13	70	31	100	45	2

Objective : To introduce and familiarize student with application of metal and alloys.

Content : Study of physical, chemical visual and textural properties of metals and alloys and their application in building and Metal and alloys like steel, iron, brass, aluminum and copper are to be studied as structural and non structural applications.

Protective finishes on metal.

Study of Metal applications in hard wares.

Notes :

Exercise / Teaching Methodology

:

Reference Books :

1. Architecture & materials by Benitez Cristira C.
2. Building materials by Varghese P C
3. Engineering Materials by Rangwala
4. Introduction to Engineering Materials by Agarwal
5. Smart Materials in Architecture, Interior Architecture and Design by Axel Ritter
6. A Textbook of Strength of Materials by Dr. R.K. Bansal
7. Architecture Materials
8. Architecture Materials Words by Holz (Bois)
9. Architecture Materials Concrete
10. Architecture materials Glass
11. Mitchell's Materials by Alan Everett

Semester : **Fourth** **2nd Year**

Subject Name : **ARCHITECTURAL STRUCTURES-IV**

Subject Code : **4JAR4**

L	T/S	Exam Hrs.	30% Mid Term Assessment				70% End-Term Assessment	Min. Pass. Marks For 70% =(45%)	Total Marks	Min. Pass. Marks =(45%)	Credits
			Assignment 5	Mid-Term 15	Attendance 10	Min. Pass. Marks 30%=45%					
2	1	2	5	15	10	13	70	31	100	45	3

Objective :

Unit I	Constituent of concrete and functions of each constituent; storage of aggregates; properties of coarse and fine aggregates; flakiness and elongation index and its determination; fineness modulus impurities; introduction to admixtures (accelerators and retarders).
Unit II	Cement; raw materials for cement; manufacturing of cement; types of cements and their properties; IS tests on cement; field tests for cement; bouge's compounds and their influences on properties of cement.
Unit III	Concrete mixing; batching of concrete; introduction to mix design methods; workability and determination of workability of fresh concrete; factors affecting workability; effect of w/c ratio on strength; segregation and bleeding of concrete; properties of fresh and hardened concrete; tests on hardened concrete.
Unit IV	Requirements of good structures, safety, stability, economy; design concept of factor of safety and limit state; failure modes of a structure; permissible stresses and deflections;
Unit V	Types of loads and combinations of loads; necessity of reinforcement; characteristics of reinforcing material; introduction to mild steel and high tensile steel; factors of safety; live loads on various types of floors and roofs; introduction to IS 875 part 2 , IS 456:2000 and IS 800:2007.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

:

Reference Books : 1. Steel Table by Agor R

Semester : **Fourth** **2nd Year**

Subject Name : **ARCHITECTURAL DESIGN-II**

(Including Measured Drawing Camp)

Subject Code : **4JAR5**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks For 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
-	8	100	25	25	67	100	45	250	112	8

Objective : Introduction to basic design methodologies including emphasis on case studies, time activities studies, anthropometrics and their presentation as a prelude to design solution. Due emphasis is to be given on concurrent subjects like Climatology, construction techniques etc. Incorporation of building materials in design solution to be emphasized.

Exercise may include building with multiple uses such as clubs, clinics, motel, secondary schools and community centre.

Measure drawing camp to include study of building/group of building/settlements of architectural important, involving detailed drawings, constructional details, material used giving due importance to the given context.

Notes :

Exercise / Teaching Methodology :

Reference Books :

1. Club Design by Daab
2. Educational Space Vol.3 by Noal
3. Educational Facilities by Arian Mostaedi
4. Kindergartens Schools and Playgrounds by Ana G. Canizares
5. Restaurant, Clubs and Bars by Fred Lawson
6. A Design Manual Schools and Kindergartents by Mark Dudek
7. Time Saver Standards for Building Types by Dechiara & Others
8. The Elements of Style by Chlloway (Stephen)
9. Time Saver Standards for Urban Design by Donald Watson
10. Design Elements: Form & Space by Dennis M. Puhalla
11. Time saver standards for Landscape Architecture (II edition) by Charles W. Harris & Micholas T. Dines
12. The City Shaped - Urban Patterns and Meanings Through History by Spiro Kostof
13. The Urban Pattern by Gallion (B)

Semester : **Fourth** **2nd Year**

Subject Name : **THEORY OF DESIGN-II**

Subject Code : **4JAR6**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks For 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	1	40	10	10	27	40	18	100	45	2

Objective : To appreciate the guiding principles in the words and philosophies of Master Architects.

Unit I	Study of time, life, works and philosophies of Louis Suillvan, Frank Lloyd Wright, Walter Gropius, and Mies Vander – Rohe, Le Corbusier. Introductory note on the Chicago school and ultimately more stress should be given on development of concepts of their individual works as entity in itself.
Unit II	**Louis Sullivan** Guaranty Building, Wainwright building, Auditorium building etc. **Walter Gropius** Bauhaus, Fagus Shoe Last Factory etc.
Unit III	**Meis Van Der–Rohe** Farnsworth House, Lake shore Apartment, Seagram Building etd. **Frank Lloyd Wright** Parie Houses, Organic Architecture etc.
Unit IV	**Le Corbusier** Early and later works as well as specific study of Chandigarh.
Unit V	**Introduction to following terms** Brutalism, Purism, Expressionism, Modernism, Post Modernism, Neo-modernism, Deconstructivism etc.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology:

Reference Books :

1. The Elements of Style by Chlloway (Stephen)
2. An Introduction to Architectural Theory by Mallgrave
3. Design Dialog by Deshpande & Shireesh
4. Green is Red by Anil Laul
5. Le Corbusier vol.1,1910-1929 by W.Boesiger & O.Stonorov
6. Le Corbusier vol.2,1929-1934 by W.Boesiger
7. Le Corbusier vol.3,1934-1938 by M. Bill
8. Le Corbusier vol.4,1938-1946 by W.Boesiger
9. Le Corbusier vol.5,1946-1952 by W.Boesiger
10. Le Corbusier vol.6,1952-1957 by W.Boesiger
11. Le Corbusier vol.7,1957-1965 by W.Boesiger
12. Le Corbusier vol.8,1965-1969 byW.Boesiger

Semester : **Fourth** **2nd Year**

Subject Name : **ART & GRAPHICS-IV**

Subject Code : **4JAR7**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks For 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	2	40	10	10	27	40	18	100	45	3

Objective : Develop the knowledge and understanding of the past (History) and exploration in the different mediums.

Unit I	**Emphasis** is to be laid on various presentation techniques and renderings of drawings.
Unit II	**Perspectives** of buildings and interior views. **Rendering** in different mediums like pencil, ink, watercolors etc.
Unit III	**Study** of light and shade with reference to objects, buildings etc.
Unit IV	**Making** collages, murals, sculptures at a bigger scale leading to a art project, using different materials like metals, clay, Plaster of Paris, wood, paper, ceramics, glass etc.
Unit V	**History** of art, artists and their work, Various movements and schools of thought like cubism, fauvism, impressionism etc. Introduction to Indian Schools/ styles of Arts; Traditional art forms in India.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

:

Reference Books :

1. Water Colour by Mulick (Milind)
2. Sketch Book by Mulick (Milind)
3. Rendering with Pen +Ink by Gill (Robert W)
4. Color in Sketching and Rendering by Guptill
5. Art Deco Architecture
6. Art The Difinitve Visual Guide by Dixon (Andrew Graman)
7. Graphic Design A Concise History by Hollis (Richard)
8. Monographs by Lalit Kala Academy, New Delhi

Semester : **Fourth 2nd Year**

Subject Name : **BUILDING CONSTRUCTION-IV**

Subject Code : **4JAR8**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks For 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	3	40	10	10	27	40	18	100	45	4

Unit I	**Emphasis** is to be laid on understanding of construction in steel in different parts of buildings.
Unit II	**Foundation** Grillage foundation, Structure; Steel columns and beams structure, Structural floor
Unit III	**Steel** trusses structures with riveted and welded joints; Tubular Truss
Unit IV	**Roofing** Roof covering in G.I., Asbestos and Fiber sheets etc.
Unit V	**Staircase** Metal staircase.

Notes :

1. Mid Term Exam shall be as of Unit I to III.
2. There shall be regular site visits to buildings, under construction or constructed, to explain the above topics. Use of audio-visuals should be stressed.
3. Sessional work shall be done as scaled drawing on drawing sheets and freehand drawings along with occasional visits to construction sites.

Exercise / Teaching Methodology :

Reference Books :

1. Building Construction by Varghese
2. Barry's Introduction to Construction of Buildings by Stephen Emmitt & Christopher Gorse
3. Handbook of Building Construction Vol-II by M M Goyal
4. Building construction illustrated by Ching
5. Building Constructions by Rangwala (S.C.)
6. Building Construction by Rangwala
7. Building Constructions Illstrated by Ching (Francis D K)
8. The Text Book of Building Construction by Bindra Arora
9. The Construction of Buildings by Barry R
10. Bulding Construction by Punmia B C
11. Bulding Construction Hand Book by Chudley & Other
12. Building Construction Vol. I-IV by Mckay W.B.
13. Carpentry and Building Construction by Feirer & Hutchings
14. Building Construction by Sushil Kumar
15. Mitchell's Introduction to Building by Roger Greeno & Derek Osbourn.

Semester : **Fourth** **2nd Year**

Subject Name : **COMPUTER APPLICATION IN ARCHITECTURE-II**

Subject Code : **4JAR9**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks For 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	2	40	10	10	27	40	18	100	45	3

Objective : Introduction of drafting software and management of Data in related software.

Content : 3D drafting in any popular architectural software e.g. ACAD (latest version)

Management of data in a data processing software e.g. MS Excel, Tools related to bar charts, Pie charts and Tables to be introduced.

Simple calculation functions like addition, average and sorting to be learnt.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Drafting simple geometrical object in 3 dimensions. Creation of double line Plans of simple building types.

Reference Books :

1. Mastering Autocad Civil 3d by Prober
2. Autocad 2009 by Bible
3. Cad Principles by Szalapai
4. Foundations of Computing by Sinha & Sinha

Semester : **Fourth** **2nd Year**

Subject Name : **SURVEYING LAB**

Subject Code : **4JAR10**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks For 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
-	2	40	10	10	27	40	18	100	45	2

Objective :

S.No.	Experiments	Instruments
1.	To measure horizontal distances and marking of offsets.	Chain and Tape
2.	To measure Fore Bearings and Back Bearings for open & close traverse.	Compass and Chain or Tape
3.	To find out differences in elevations of two stations.	Dumpy level, Staff
4.	To determine horizontal angle by Repetition and Reiteration Method .	Theodolite & Ranging rods
5.	To determine vertical angle for elevations of tower & Building.	Theodolite & Staff.
6.	To locate two distinct points on sheet.	Plane Table, Alidade, Trough Compass

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

:

Reference Books :

1. B.C.Punmia – Surveying Vol.I – Standard Book House, New Delhi – 1983.
2. P.B.Shahani – Text of surveying Vol.I, Oxford and IBH Publishing Co – 1980
3. Fundamentals of Surveying by Roy
4. Surveying by K.R. Arora
5. Surveying and Leveling by Bhavikatti (S.S.)
6. Surveying vo. 1-5 by Punmia
7. The Hand Book of Lighting Surreys & Audits by Fetters (John L.)
8. The Home Owner's Survival Manual by Arch

B.Arch, Semester-V, IIIyr. (5 yrs Degree Course)

THEORY

Sr. Nos.	Code No.	Subjects	L	T	Exam. Hrs.	30% Mid Term Ass.				70% End Term Ass.	Min. Pass. Marks for 70%=45 %	Total Marks	Min. Pass. Marks =(45 %)	Credits
						Assignment 5	Mid Term 15	Attendance 10	Min. Pass. Marks for 30%=45 %					
1	5JAR1	History of Architecture-III	2	1	3	5	15	10	13	70	31	100	45	3
2	5JAR2	Building Services-I (Water supply & sanitation)	2	1	3	5	15	10	13	70	31	100	45	3
3	5JAR3	Construction Materials-V	1	1	3	5	15	10	13	70	31	100	45	2
4	5JAR4	Architectural Structures-V	2	1	2	5	15	10	13	70	31	100	45	3
		SUB TOTAL	7	4	11	20	60	40	52	280	124	400	180	11

SESSIONALS

Sr. Nos.	Code No.	Subjects	L	S	60% Mid Term Ass.				40% End Term Ass.	Min. Pass. Marks for 40%=45%	Total Marks	Min. Pass. Marks =(45%)	Credits
					Assignment 40%	Mid Term 10%	Attendance 10%	Min. Pass. Marks for 60%=45%					
5	5JAR5	Architectural Design-III & Field Trip	_	8	100	25	25	67	100	45	250	112	8
6	5JAR6	Quantity Surveying & specification	2	1	40	10	10	27	40	18	100	45	3
7	5JAR7	Sociology	1	1	40	10	10	27	40	18	100	45	2
8	5JAR8	Building Construction-V	1	3	40	10	10	27	40	18	100	45	4
9	5JAR9	Computer Application in Architecture-III	_	2	40	10	10	27	40	18	100	45	2
10	5JAR10	Elective-I 5JAR10.1 Interior Design 5JAR10.2 History of Rajasthan Art	1	1	40	10	10	27	40	18	100	45	2
11	5JAR11	Discipline & Extra Curricular Activities	_	_	-	-	-	-	-	-	-	-	Non-Credit
12	5JAR12	Landscape and Site Planning	1	2	40	10	10	27	40	18	100	45	3
		SUB TOTAL	6	18	340	85	85	229	340	153	850	382	24
		GRAND TOTAL	35 HRS./ WEEK								1250	625*	35

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Semester : **Fifth** **3rd Year**

Subject Name : **HISTORY OF ARCHITECTURE-III**

Subject Code : **5JAR1**

L	T/S	Exam Hrs.	30% Mid Term Assessment				70% End-Term Assessment	Min. Pass. Marks For 70% =(45%)	Total Marks	Min. Pass. Marks =(45%)	Credits
			Assignment 5	Mid-Term 15	Attendance 10	Min. Pass. Marks 30%=45%					
2	1	3	5	15	10	13	70	31	100	45	3

Objective : To study the styles, form and method of construction of the Renaissance period, Modern Architecture.

Unit I	British – Colonial Architecture, Indo – Gothic Architecture, Indo – Renaissance Architecture and the design and Architecture of New Delhi by sir Edwin Lutyens. **Renaissance Architecture:** • Italian • French • English • German
Unit II	Modern Architecture and its development during industrial revolution and its influence thereby the great international exhibitions, various movements, thoughts and philosophies pertinent **Early Islamic Architecture** • Development of ancient Islamic Architecture (global) • Development of Islamic Architecture (Indian) pre-Mughal rule (Delhi Sultanate)
Unit III	**Indian Islamic Provincial Architecture —** • Central India • East India • West India • South India
Unit IV	**Indian Islamic Architecture during Mughal Rule** • Pre Akbar period • Akbar –Jahangir period • Reign of Shajahan • Aurangzeb and after
Unit V	**Colonial Architecture** • Introduction • Regional influence • Indo-saracenic style • Influence of early industrialization

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Analytical and illustrative exercises of above topics in the form of papers and seminars.

Reference Books :

1. Sir Banister Fletcher, A History of Architecture, University of London, The Antholone Press, 1986.
2. Spiro Kostof – A History of Architecture – Setting and Rituals, Oxford University Press, London, 1985.
3. Pier Luigi Nervi, General Editor – History of World Architecture – Series, Harry N.Abrams, Inc.Pub., New York, 1972.
4. S.Lloyd and H.W.Muller, History of World Architecture – Series, Faber and Faber Ltd., London, 1986.
5. Vincent Scully: Architecture; Architecture – The Natural and the Man Made: Harper Collins Pub: 1991.
6. Leland M Roth; Understanding Architecture: Its elements, history and meaning; Craftsman House; 1994
7. History of Architecture by G.K. Hiraskar
8. A Global History of Architecture by Francis D.K. Ching
9. A History of Architecture by Fletcher Baister
10. The Oral History of Modern Architecture by Peter
11. Modern Architecture in India by Sarbjit Bahga
12. Architecture in India by Electa Moniteur
13. The Architecture of India by Adam Hardy
14. Architecture in India Since 1990 by Rahul Mehrotra
15. The Great Ages of World Architecture by Hiraskar G K
16. World Architecture the Master Work by Pryce (Will)
17. History of Architecture by Abhishek Publications Chandigary
18. Islamic Architecture by Robert Hillenbrand
19. The Story of Renaissance Architecture by Sonia Servida
20. The Elements of Style by Chlloway (Stephen)
21. Masterpieces of Modern Architecture by M. Agnoletto
22. Modern Architecture Since 1990 by William I.R. Curtis

Semester : **Fifth** **3rd Year**

Subject Name : **BUILDING SERVICES–I (Water Supply & Sanitation)**

Subject Code : **5JAR2**

L	T/S	Exam Hrs.	30% Mid Term Assessment				70% End-Term Assessment	Min. Pass. Marks For 70% =(45%)	Total Marks	Min. Pass. Marks =(45%)	Credits
			Assignment 5	Mid-Term 15	Attendance 10	Min. Pass. Marks 30%=45%					
2	1	3	5	15	10	13	70	31	100	45	3

Objective : To study water supply and sanitation in building design.

Unit I	**Sanitation-I** • Basic principles of sanitation • Introduction to modern plumbing system. • Study of Indian standards and plumbing byelaws (NBC). • General introduction to various sanitary fitting & fixtures, their placement, functions and constructional details. • Study of internal & external drainage system including study of duct for various buildings including small residences, apartments, block of houses, public buildings etc.
Unit II	**Sanitation-II** • Study of various types of sanitary pipes, construction of joints and laying of pipes. • Study of Traps, Inspection chambers, Manholes, Septic tanks, Soak pits, and Public sewage line. • Study of Disposal systems for domestic effluent from fitting to sewer line. • Study of storm water disposal at site and settlement level.
Unit III	**Sanitation-III** • Importance of sanitary services in the economics of buildings. • Study of refuse chutes and service floors in multistoried buildings. • Planning & design for disposal of urban /rural effluent. • Various methods of collection, treatment, disposal, and recycle of urban /rural effluent including wastewater and city solid wastes. • Traps, ventilation of drains are sewers. • Drainage in non municipal areas – soak wells, septic tanks, water closets, flushing valves, flushing tanks, basins and its accessories, rain water, drainage pipes, spouts, sizing of rain water pipes, disposal system of rain water ground level, storm water drainage. Introduction to Indian Bureau of Standards.
Unit IV	**Water Supply-I** • Sources of water, types of water. • Water treatment for domestic purpose. • Quality of potable water. • Rain water harvesting system. • Recycling of water. • Principles of design of drainage lines, drainage layouts for building premises, longitudinal sections of drains. • Suilage, toilet waste and storm was collection and disposal system. Requirements for various building types for solid waste management systems, disposal of toxic and hazardous wastes, General principles of drainage, manholes, grease chambers, etc.

Unit V	**Water Supply-II** • Study of water storage and supply network. • Calculation of water supply requirements based on Indian standards (BIS and NBC). • Architectural approach to plan the domestic water storage facilities and water distribution system in a building and settlement, along with study of fixtures, fittings, accessories, equipments and construction details thereof. • Requirements of water supply to different types of building. Sources of water, modes and methods of conveyance of water, fixtures and appliances. • Distribution of water, method of distribution, different distribution systems and their principles of layout. • Design water distribution system in a campus, and in a building, overhead and underground water storage tanks.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Preparation of reports, visit to construction site and documentation. Market survey study water supply and drainage products.

Reference Books :

1. Manual of water supply & treatment, 2nd edition, CPHEEO, Ministry of works and housing, New Delhi 1977
2. AFE Wise, JA Swaffied Water, Sanitary & Waste Services in buildings – Mitchell Publishing Co. Ltd. – 2002, V Ed.
3. G.M. Fair, J.C.Geyer & D.Okin, Water and Waste water engineering Vol II, John Wiley & Sons, Inc. N Y, 1968
4. Manual on sewerage and sewerage treatment, CPHEEO – Ministry of works and housing, New Delhi, 1980
5. S.C.Rangwala, Water supply and sanitary engineering, Chartar publishing house, Anand, 1989, Lecture notes compiled by Chaman.L.Gupta
6. Renewable energy, basics and technology, supplement volume on integrated energy systems) Solar Agni systems, Sri Aurobindo Ashram, Pondicherry 605002 India
7. Water Supply and Sanitation by Charanjit Shan
8. Water Supply and Sanitary Engineering by S.C. Rangwala
9. Plumbing Design and Practice by S G Deolalikar
10. Water Supply and Sanitary Installations by A.C. Panchdhari
11. Water Supply and Sanitary Engineering by Gurcharan Singh
12. Water Supply by Birdde
13. Water Supply Engineering by Punamia
14. Water Supply Engineering by Santosh Kumar Garg
15. Plumbing Technology: Design and Installation by Lee Smith
16. Water Supply by A.C. Twort

Semester : **Fifth** **3rd Year**

Subject Name : **CONSTRUCTION MATERIALS-V**

Subject Code : **5JAR3**

L	T/S	Exam Hrs.	30% Mid Term Assessment				70% End-Term Assessment	Min. Pass. Marks For 70% =(45%)	Total Marks	Min. Pass. Marks =(45%)	Credits
			Assignment 5	Mid-Term 15	Attendance 10	Min. Pass. Marks 30%=45%					
1	1	3	5	15	10	13	70	31	100	45	2

Objective : Understanding properties and use of protective finishes, timber and its products.

Unit I	Decorative finishes, wooden flooring, wooden staircase, wooden paneling, glazed floor wall finishes, ceramic tile finishes.
Unit II	Materials Damp Proof.
Unit III	Thermal Insulation.
Unit IV	Sound Insulation.
Unit V	Fire-Proof Finish.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Study of I.S. Codes, Seminars and preparation of reports. Visit to construction site.

Reference Books :

1. Architecture & materials by Benitez Cristira C.
2. Building materials by Varghese P C
3. Engineering Materials by Rangwala
4. Introduction to Engineering Materials by Agarwal
5. Smart Materials in Architecture, Interior Architecture and Design by Axel Ritter
6. A Textbook of Strength of Materials by Dr. R.K. Bansal
7. Architecture Materials
8. Architecture Materials Words by Holz (Bois)
9. Architecture Materials Concrete
10. Architecture materials Glass
11. Mitchell's Materials by Alan Everett

Semester : **Fifth** **3rd Year**

Subject Name : **ARCHITECTURAL STRUCTURES-V**

Subject Code : **5JAR4**

L	T/S	Exam Hrs.	30% Mid Term Assessment				70% End-Term Assessment	Min. Pass. Marks For 70% =(45%)	Total Marks	Min. Pass. Marks =(45%)	Credits
			Assignment 5	Mid-Term 15	Attendance 10	Min. Pass. Marks 30%=45%					
2	1	2	5	15	10	13	70	31	100	45	3

Objective : Design of R.C.C. construction. (The teaching program should lay relatively greater emphasis on the conceptual understanding as well as design calculations).

Unit I	Method of RCC design i.e. LIMIT STATE METHOD OF DESIGN Limit state of flexure; analysis and design for singly and doubly reinforced RCC beams.
Unit II	Analysis and design for flanged beams and L – beams; design for shear and bond; anchorage and development length; design of stirrups for beams (vertical stirrups only).
Unit III	Introduction to slabs i.e. one – way and two – way slabs; various load distribution patterns for slabs; design of one – way slab. Various corner conditions for slabs; design of two – slabs.
Unit IV	Introduction to RCC columns; long and short columns; slenderness ratio criteria; eccentricity criteria; design and analysis of axially loaded short RCC columns (rectangular, square and circular in section).
Unit V	Types of footings; various types of failures of footings; design of isolated footing. Introduction to retaining walls and RCC walls; design moments and design shear force calculations for retaining walls and RCC walls.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: The teaching should include the complete design of a small residence incorporating all the structural components as mentioned above & should be submitted in the form of a report.

Reference Books :

1. Design of Bridge Structures by Jagadeesh
2. Design of concrete Structures by Bandopadha
3. Simplified Design of Concrete Structure by Mabrose (Parker)
4. Steel Table by Agor R

Semester : **Fifth** **3rd Year**

Subject Name : **ARCHITECTURAL DESIGN–III & FIELD TRIP**

Subject Code : **5JAR5**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks For 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
-	8	100	25	25	67	100	45	250	112	8

Objective : To understand multiuse institutional and public building at community level.

Content : Design of an institution or public building at the community scale or infill scale; Understanding essential character of an institution or public building; Influence of culture, land, climate, technology and finance on the building design; Part detail of the project to understand design resolution.

Notes :

Exercise / Teaching Methodology :

Project : Community Hall, Neighborhood school, Bank building, Religious institution, Shopping Plaza.

Reference Books :

1. The Best in Science, office and Business Park Design by Phillips (Alan)
2. The Urban School by Architecture
3. Malls & Department Store by Chris Van Uffelen
4. Office Design by Milan
5. Educational Space Vol.3 by Noal
6. Time Saver Standards for Building Types by Dechiara & Others
7. The Elements of Style by Chlloway (Stephen)
8. Time Saver Standards for Urban Design by Donald Watson
9. Design Elements: Form & Space by Dennis M. Puhalla
10. Time saver standards for Landscape Architecture (II edition) by Charles W. Harris & Micholas T. Dines
11. The City Shaped - Urban Patterns and Meanings Through History by Spiro Kostof
12. The Urban Pattern by Gallion (B)

Semester : **Fifth** **3rd Year**

Subject Name : **QUANTITY SURVEYING & SPECIFICATION**

Subject Code : **5JAR6**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks For 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
2	1	40	10	10	27	40	18	100	45	3

Objective : Basic understanding of preparing estimates and tender document for design of building.

Unit I	**Specifications-I:** • Importance and methods of drafting specification in buildings • Use of Indian standard specification and PWD/ CPWD handbook, specifications affecting cost. • Method of specification writing (trade wise practice, item of completed works) • Standard clauses/ instructions for various items of work for the contractor, owner, Architect, sub- contractor. • Explanation of extra items, their necessity and other items created for change of specifications.
Unit II	**Specifications-II:** • Specification for a structure from excavation up to finishing in superstructure. • Material specification (timber and its products, metals, water proofing materials, materials used in roofing and roof covering, etc.) • Exercise on specification writing of load bearing structure, R. C. C. frame structure and steel frame structure.
Unit III	**Introduction to Estimation:** • Types of estimates. • Methods of preparing estimates. • Data required for making an estimate. • Introduction to Quantity Survey. • Taking off quantities for principal building works, electrical works. • Introduction to procedure of estimating, data required for framing an estimate, type of estimates. • Approximate and detailed estimate, Abstract of Estimates, Bills of quantities, Contingencies.
Unit IV	**Methods of estimation and rate analysis:** • Mensuration, Standard Mode of measurements, Schedule of rates, Commercial abbreviations, Methods and procedure of taking off abstractions, Working up and Billing, Examples and exercises for above from excavations to finishing. • Rate analysis, Cost of materials and labour for various works, Measurement of work for interim and final certificates for payment to contractors.

	• Analysis of Rate for Principal civil works, item rate considering current market rate for building materials and labor wages as well as P.W.D. scheduled of rates.
Unit V	Composition of rate – percentage – distribution for materials, labor, tools plant and contractor's Profit.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Preparing estimate and tender document for a building. Studying tender documents of Government projects and private projects.

Reference Books :

1. Estimating, Costing and Valuation (Professional practice) By Rangwala – S.C Charotar Publishing House, India.
2. Estimating & Costing – By B.W. Dutta (Revised by S. Dutta) UBS Publishers Distribution P.Ltd. India.
3. Estimating Costing & Valuation by Rangwala
4. Estimating for civil engineers by Varshney D V
5. Estimating and Costing in Civil Engineering by B.N. Dutta
6. A Course in Electrical Installation Estimating & Costing by J. B. Gupta
7. Estimating Costing and Valuation by Gurcharan Singh & Jagdish Singh
8. Estimating & Costing & Valuation by Rangwala
9. A text book of Estimating and costing by Brirdie GS
10. Estimating & Costing & Valuation by Vazirani
11. Basic of civil engineering by Chander
12. Hand book of Civil engineering by Vaziram & Chandola
13. Estimating Costing and Building Economics for Architects by Prof. Harbhajan Singh

Semester : **Fifth** **3rd Year**

Subject Name : **SOCIOLOGY**

Subject Code : **5JAR7**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks For 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	1	40	10	10	27	40	18	100	45	2

Objective : To develop a sociological base for Architecture

Unit I	Man, environment and society.
Unit II	Distinguishing features of Rural and Urban society.
Unit III	The concept of social stratification urbanization and modernization.
Unit IV	Concept of social structure, cultural and social institutions, relation between social structure and spatial structure, social aspects of housing for different economic classes with focus on urban poor, Urban Slums and problems of slums.
Unit V	Community participation in development of public assets like schools.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Study (in groups of 4-5) of urban slums to document various social cultural aspects of urban slums with focus on usages of spaces in the 24 hour day cycle and different seasons. Individual project involving interaction with community or study of social and cultural customs or informal shopping like *Haat Bazaar* or anything similar followed by seminar.

Reference Books :

1. Sociology by C.N. Shankar Rao
2. Sociology Basic Concepts by H.K. Rawat
3. Indian Social System by Ram Ahuja
4. Ideology & Theory in Indian Sociology by Yogendra Singh
5. Sociology by Anthony Giddens
6. Social Science an introduction to the study of society by Elgin F. Hunt & David C. Colander
7. Urban Sociology by N. Jayapalan
8. Urban Sociology: Images & Structure by William G. Flanagan
9. Urbanization in India Sociological Contributions by Ranvinder Singh Sandhu
10. Design for Diversity: Exploring Socially Mixed by Emily Telen

Semester : **Fifth** **3rd Year**

Subject Name : **BUILDING CONSTRUCTION-V**

Subject Code : **5JAR8**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks For 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	3	40	10	10	27	40	18	100	45	4

Objective : To study construction of different protective finishes in building design.

Unit I	**Wall Finishes:** • Cavity Wall Construction • Wood Paneling • Stone Paneling
Unit II	**Floor Finishes:** • Terrace Water Proofing • Basement Damp Proof Construction • Industrial Steel Floor
Unit III	False Ceiling Partitions
Unit IV	**Special flooring and roofing:** • Industrial steel floor. • Fire proof roofing / flooring. • Stone slab roofing. • Stone floor on girder support.
Unit V	**Flooring** • R.C.C. Flooring, • Mosaic Flooring & Cement Tile Flooring, • Interlocking Paving Blocks in ground and upper floors, • Industrial Flooring.

Notes :

1. Mid Term Exam shall be as of Unit I to III.
2. There shall be regular site visits to buildings, under construction or constructed, to explain the above topics. Use of audio-visuals should be stressed.
3. Sessional work shall be done as scaled drawing on drawing sheets and freehand drawings along with occasional visits to construction sites.

Exercise / Teaching Methodology

: Preparing Construction drawings based on above topics. Preparing report of a building selected from site and presentation.

Reference Books :

1. Building Construction by Varghese
2. Barry's Introduction to Construction of Buildings by Stephen Emmitt & Christopher Gorse
3. Handbook of Building Construction Vol-II by M M Goyal
4. Building construction illustrated by Ching
5. Building Constructions by Rangwala (S.C.)
6. Building Construction by Rangwala
7. Building Constructions Illstrated by Ching (Francis D K)
8. The Text Book of Building Construction by Bindra Arora
9. The Construction of Buildings by Barry R
10. Bulding Construction by Punmia B C
11. Bulding Construction Hand Book by Chudley & Other
12. Building Construction Vol. I-IV by Mckay W.B.
13. Carpentry and Building Construction by Feirer & Hutchings
14. Building Construction by Sushil Kumar
15. Mitchell's Introduction to Building by Roger Greeno & Derek Osbourn

Semester : **Fifth** **3rd Year**

Subject Name : **COMPUTER APPLICATION IN ARCHITECTURE-III**

Subject Code : **5JAR9**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks For 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
-	2	40	10	10	27	40	18	100	45	2

Objective : Developing Computer application skills for building drawings and presentations.

Unit I	Making Interior
Unit II	Exterior views of buildings in 3D Max. Model
Unit III	Rendering
Unit IV	Application of Light, Background, Camera, etc.
Unit V	Walkthroughs & Flyovers.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Preparing drawings based on above topics for selected building.

Reference Books : 1. Foundations of Computing by Sinha & Sinha

Semester : **Fifth** **3rd Year**

Subject Name : **ELECTIVE-I - INTERIOR DESIGN**

Subject Code : **5JAR10.1**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks For 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	1	40	10	10	27	40	18	100	45	2

Objective : To develop sensitivity to related dimension of architecture like arts and crafts, traditional ornamentation.

Contents :

Unit I	**Introduction** • Understanding the role of interior design in total design process. • Procedure of Interior design. • Impact of the interior space on human psychology and behavior. • Historical background of interior design on global level.
Unit II	**Elements and components of interior design** • Study of considerations for interior design such as Space, planes, Form, Color, texture. • Abstract and formal configuration, geometrical disciplines, visual controls, illusions with their separate and combined impact. • Generating character in interiors through use of materials, colors, styles etc. • Principles of space planning through Orientation, Privacy, Grouping, Flexibility, Circulation, Furniture arrangements, etc.
Unit III	**Materials in interior:** • Surfaces, viz. walls, floor , ceilings etc. • Furniture, lose and built-in. • Upholstery, drapery. • Rugs ,carpets and other floor coverings. • Water bodies, planters and plantation. • Decorative features like paintings, sculptures.
Unit IV	**Services in interior design:** • Impact of elements used for thermal comfort, • Electrical wiring system and fixtures • Acoustical treatment in interiors and their role in design, • Illumination, light sources and fixtures, • Building services etc and design measures to handle them.
Unit V	**Design scheme:** • Complete design scheme of interiors for spaces having different uses and requirements such as Reception halls, Waiting lounges, Restaurants, foyers, Drawing halls, Offices, Residential spaces, Exhibition halls, Hotels, Theatres, Assembly Halls etc.

Notes : Mid Term Exam shall be as of Unit I to III.

Sessional shall be prepared in the form of notes and sketches, schematic and scale drawings etc. on above topics.

Exercise / Teaching Methodology

:

Reference Books :

1. Francis D.K.Ching, Interior Design Illustrated, V.N.R. Pub. NY 1987
2. Ahmed & Kasur
3. The Codes Guide Book for Interiors Harmon by (Sharon Koomen)
4. Time Saver Standards for Interior Design and Space Planning by Dechiara & Others
5. Color in Interior Design by John Plie
6. Interior Design by Ahmed A Kasu
7. Interior Design Illustrated by D.K. Ching
8. Human Dimension & Interior Space by Julius Panero
9. Time Saver Standards for Urban Design by Donald Watson

Semester : **Fifth** **3rd Year**

Subject Name : **ELECTIVE-I - HISTORY OF RAJASTHAN ART**

Subject Code : **5JAR10.2**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks For 60% =(45%)	40% End Term Ass.	Min. Pass. Marks For 40% =(45%)	Total Marks.	Min. Pass. Marks =(45%)	Credits
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	1	40	10	10	27	40	18	100	45	2

Objective : To develop understanding of Rajasthani Art their techniques and their styles in different periods and now these are used in Architecture.

Contents :

Unit I	Introduction
Unit II	Brief History – Prehistoric to modern period
Unit III	**Regional division** • Mewar – Udaipur, Nathdwara, Devgarh • Marwar – Kishangarh, Jodhpur, Bikaner • Haroti – Kota, Bundi • Dhundhar – Jaipur, Alwar, Shekhawati, Udaipur
Unit IV	Fresco Painting – Techniques, Styles
Unit V	• Miniature Painting – Techniques, Styles • Phad Painting – Techniques, Artist

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology :

Reference Books :

1. A History of Rajasthan Rima Hooja
2. The Blue God by P. Banerjee
3. The Exile in the Forest by Vishwa Chander Ohri
4. Indian Paintings in British Library by J.P. Losty
5. Indian Paintings by B. N. Goswamy and Usha Bhatia
6. Painted Visions by B. N. Goswamy and Usha Bhatia
7. The Kingdom that was Kotah by M.K. Brijram Singh
8. Sensibility Objectified The Sculptrres of Sarbari Roy Choudhury Text by R. Siva Kumar

Semester : **Fifth** **3rd Year**

Subject Name : **LANDSCAPE AND SITE PLANNING**

Subject Code : **5JAR12**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	2	40	10	10	27	40	18	100	45	3

Objective : Understanding theory and design of landscape and site plan.

Unit I	Introduction to landscape architecture. Elements of landscape design and their relation to built environment. • Definition of landscape its scope and importance in architecture • Planning levels of landscape planning (micro to macro level). • Role of Landscape Architecture in Sustainable Development • Landscape design process, information needed for landscape survey. • Land, water & plants as landscape elements, their functional & aesthetical considerations in landscape design. • Man made elements in landscape design-lamp posts, sign boards, garbage bins, fences etc.
Unit II	Plant characteristics – The structure, color, form and foliage of various trees and shrubs and climbers and ground covers. Study and identification of Indian Plants and trees etc. Plant propagation. • Plantation – Understanding plant material as a design tool. • Design characteristics of plants, selection of plant materials for roof gardens, atriums, avenues, road side plantation, court yards, parking areas, near water bodies, indoor areas, etc. gardening notes including study of soil, fertilizers etc.
Unit III	Study of landscape in Historical perspective – Indian, Persian, Chinese, Indian 1850 etc. Principles and design philosophy of history of landscape architecture • Mughal • Japanese gardens • Renaissance • 18th century – Brownian • 19th century – Botanical gardens. • Dutch Landscape • English Landscape. • Contemporary Landscape Architecture.

Unit IV	Landscape designing – site analysis and development. Designing and presentation of landscape schemes for building projects, gardens/parks, historical monuments, places of tourist interest and Public Art etc.
Unit V	Contemporary attitudes to landscape design. Design of road layouts. Parking and campus planning.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Design of landscape for building projects and public spaces. The submissions shall be in the form of handmade sketches etc.

Reference Books :

1. Landscape in History by Philip Pregill & Nancy Volkman
2. Ultimate Landscape Design
3. ILLustrated History of Landscape Design by Boults & Sullivan
4. Landscape Construction by David Sauter
5. Construction Landscape: Materials Techniques by Astrid Zimmermann\
6. Bamboo: A Material Landscape & Garden Designs by Jan Oprins
7. Time saver standards for Landscape Architecture (II edition) by Charles W. Harris & Micholas T. Dines
8. Design Landscape for People by Cumberlidge (Clare)
9. Landscape Architecture Construction by Landphair (Harlow)
10. Landscape Architectore Graphi Stan. by Hopper (Leonard J.)
11. Landscape Architecture Graphic Stanpres by Hopper
12. Landscape Construction by Sauter
13. Landscape Construction and Detailing by Blance
14. Modern Landscape by Spens (Michael)
15. Site Planning by Kevin Lynch & Gary Hack
16. Landscape Graphics by Reid Fasla
17. Site Planning and Design for the Elderly by Diane Y. Carstens
18. Urban Landscape by Agata Losantos
19. Site Planning and Design for the Elderly by Diane Y. Carstens

B.Arch, Semester-VI, IIIyr. (5 yrs Degree Course)

THEORY

Sr. Nos.	Code No.	Subjects	L	T	Exam. Hrs.	30% Mid Term Ass.				70% End Term Ass.	Min. Pass. Marks for 70%=45 %	Total Marks	Min. Pass. Marks =(45 %)	Credits
						Assignment 5	Mid Term 15	Attendance 10	Min. Pass. Marks for 30%=45 %					
1	6JAR1	History of Architecture-IV	2	1	3	5	15	10	13	70	31	100	45	3
2	6JAR2	Building services-II (Electrical Services)	2	1	3	5	15	10	13	70	31	100	45	3
3	6JAR3	Construction Materials-VI	1	1	3	5	15	10	13	70	31	100	45	2
4	6JAR4	Architectural Structures-VI	2	1	2	5	15	10	13	70	31	100	45	3
		SUB TOTAL	7	4	11	20	60	40	52	280	124	400	180	11

SESSIONALS

Sr. Nos.	Code No.	Subjects	L	S	60% Mid Term Ass.				40% End Term Ass.	Min. Pass. Marks for 40%=45 %	Total Marks	Min. Pass. Marks =(45%)	Credits
					Assignment 40 %	Mid Term 10%	Attendance 10%	Min. Pass. Marks for 60%=45 %					
5	6JAR5	Architectural Design-IV & Field Trip	_	8	100	25	25	67	100	45	250	112	8
6	6JAR6	Working Drawings	_	3	40	10	10	27	40	18	100	45	3
7	6JAR7	Building Economics	1	1	40	10	10	27	40	18	100	45	2
8	6JAR8	Building Construction-VI	1	3	40	10	10	27	40	18	100	45	4
9	6JAR9	Elective-II 6JAR9.1 Construction Management 6JAR9.2 Sustainable Architecture 6JAR9.3 Low Cost Construction And Techniques 6JAR9.4 Design for Disabled	1	1	40	10	10	27	40	18	100	45	2
10	6JAR10	Computer Applications in Architecture-IV	_	2	40	10	10	27	40	18	100	45	2
11	6JAR11	Educational Tour	_	_	40	10	10	27	40	18	100	45	3
12	6JAR12	Discipline & Extra Curricular Activities	_	_	-	-	-	-	-	-	-	-	Non-Credit
		SUB TOTAL	3	18	340	85	85	229	340	153	850	382	24
		GRAND TOTAL	32HRS./ WEEK								1250	625*	35

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Semester : **Sixth** **3rd Year**

Subject Name : **History of Architecture-IV**

Subject Code : **6JAR1**

L	T/S	Exam HRS.	30% Mid Term Assessment				70% End-Term Assessment	Min. passing marks for 70% =(45%)	Total Marks	Min.Pass Marks =(45%)	CREDITS
			Assignment 5	Mid-Term 15	Attendance 10	passing marks 30%=45					
2	1	3	5	15	10	13	70	31	100	45	3

Objective : Understanding the works and philosophy of Contemporary Architecture.

Unit I	**Modern Architecture** Walter Gropius, Mies Van Der Rohe, Le Corbusier.
Unit II	**Post-Modern Architecture** Michael Graves, Frank Gehry, James Sterling, Peter Eisenman, Ricardo Bofill.
Unit III	**Deconstruction Architecture** Bernard Tschumi, Zaha Hadid, Daniel Libeskind.
Unit IV	**Post-independence Architecture in India** Le-Corbusier, Louis Khan, Achyut Kanvinde, B.V. Doshi, Stien, Charles Correa, Uttam Jain, Raj Rewal, A.D. Raje

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology : Analytical and illustrative exercises of above topics in the form of papers and seminars.

Reference Books :

1. History of Architecture by G.K. Hiraskar
2. A Global History of Architecture by Francis D.K. Ching
3. A History of Architecture by Fletcher Baister
5. The Oral History of Modern Architecture by Peter
7. Modern Architecture in India by Sarbjit Bahga
9. Architecture in India by Electa Moniteur
11. The Architecture of India by Adam Hardy
12. Architecture in India Since 1990 by Rahul Mehrotra
13. The Great Ages of World Architecture by Hiraskar G K
14. World Architecture the Master Work by Pryce (Will)
15. History of Architecture by Abhishek Publications Chandigary
16. The Elements of Style by Chlloway (Stephen)
17. Masterpieces of Modern Architecture by M. Agnoletto
18. Modern Architecture Since 1990 by William I.R. Curtis
19. Harnessing the Intangible Collected Essays on the Work of Balkrishna Doshi by Neelkanth Chhaya
20. Le Corbusier vol.1,1910-1929 by W.Boesiger & O.Stonorov
21. Le Corbusier vol.2,1929-1934 by W.Boesiger
22. Le Corbusier vol.3,1934-1938 by M. Bill
23. Le Corbusier vol.4,1938-1946 by W.Boesiger
24. Le Corbusier vol.5,1946-1952 by W.Boesiger
25. Le Corbusier vol.6,1952-1957 by W.Boesiger
26. Le Corbusier vol.7,1957-1965 by W.Boesiger
27. Le Corbusier vol.8,1965-1969 byW.Boesiger

Semester : **Sixth** **3rd Year**

Subject Name : **BUILDING SERVICES–II (ELECTRICAL SERVICES)**

Subject Code : **6JAR2**

L	T/S	Exam HRS.	30% Mid Term Assessment				70% End-Term assessment	Min. passing marks for 70% =(45%)	Total Marks	Min.Pass Marks =(45%)	CREDITS
			Assignment 5	Mid-Term 15	Attendance 10	Min. passing marks 30%=45%					
2	1	3	5	15	10	13	70	31	100	45	3

Objective : To Study electrical services in building design.

Unit I	**Basic Electrical Services:** • Fundamentals of electricity. • Principles of wiring. • Study of various fixtures, fittings, accessories and equipments used in installation of electrical services in small, large and multistoried buildings of various types viz. residential, commercial, public, industrial etc.
Unit II	**Planning and design of electrical services in various types of buildings:** • Calculation of electric load and its phasing. • Schematic diagram of electric installations with use of symbols. • Study of special fixtures like lightning conductors, earthing, waterproof and spark proof installations, stabilizers, circuit breakers etc. and installation thereof. • Study and application of relevant rules and regulations of Electricity boards. • Switches and controls. • Earthing and lightening protection in building.
Unit III	Layout system for lighting, fans, telephones, etc. Electrical distribution systems in buildings – mains and sub distribution.

Notes : Mid Term Exam shall be as of Unit I to III.
The sessional shall be in form of notes, home assignments, schematic layout/drawing for layout of installation of various electrical services in given building.

Exercise / Teaching Methodology
: Preparation of reports, visit to construction site and documentation. Market survey to study electrical products.

Reference Books :

1. E.P.Ambrose, Electric Heating, John Weley & Sons Inc., New York, 1968
2. Philips Lighting in Architectural Design, McGraw Hill. New York, 1964
3. R.G.Hopkenson & J.D.Kay, The lighting of Buildings, Faber & Faber, London, 1969 Conveying systems
4. Elevators, Escalators, Moving Walkways – Manufactures catalogues
5. Handbook of building Engineers in metric systems, New Delhi 1968
6. National Building Code

Semester : **Sixth** **3rd Year**

Subject Name : **CONSTRUCTION MATERIALS–VI**

Subject Code : **6JAR3**

L	T/S	Exam HRS.	30% Mid Term Assessment				70% End-Term assessment	Min. passing marks for 70% =(45%)	Total Marks	Min.Pass Marks =(45%)	CREDITS
			Assignment 5	Mid-Term 15	Attendance 10	Min. passing marks 30%=45%					
1	1	3	5	15	10	13	70	31	100	45	2

Objective : Understanding advanced construction technology.

Content : Ferro cement, Precast construction pre-stressed construction.

Low cost building materials.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Study of I.S. Codes. Seminars and preparation of reports. Visit to construction site.

Reference Books :

1. Architecture & materials by Benitez Cristira C.
2. Building materials by Varghese P C
3. Engineering Materials by Rangwala
4. Introduction to Engineering Materials by Agarwal
5. Smart Materials in Architecture, Interior Architecture and Design by Axel Ritter
6. A Textbook of Strength of Materials by Dr. R.K. Bansal
7. Architecture Materials
8. Architecture Materials Words by Holz (Bois)
9. Architecture Materials Concrete
10. Architecture materials Glass
11. Mitchell's Materials by Alan Everett

Semester : **Sixth** **3rd Year**

Subject Name : **ARCHITECTURAL STRUCTURES–VI**

Subject Code : **6JAR4**

L	T/S	Exam HRS.	30% Mid Term Assessment				70% End-Term assessment	Min. passing marks for 70% =(45%)	Total Marks	Min.Pass Marks =(45%)	CREDITS
			Assignment 5	Mid-Term 15	Attendance 10	Min. passing marks 30%=45%					
2	1	2	5	15	10	13	70	31	100	45	3

Objective : Design of Steel Structure.

Unit I	**Introduction** Introduction to steel structures, their advantages and disadvantages in comparison of concrete structures; types of structural steel; properties of structural steel; rolled steel sections; types of loads and load combinations; safety factors. Design requirements; limit state philosophy; design strength; deflection limits and other serviceability limits; introduction to IS 800:2007 and steel tables; important definitions and various sectional properties.
Unit II	**Bolted Connections** Introduction to bolted and riveted connections; types of bolts; advantages and disadvantages of bolted connections; types of bolted joints; IS specifications for spacing and edge distances of bolt holes, types of failures in bolted connections; design and analysis of bolted connections as per IS 800:2007; eccentric connections.
Unit III	**Welded Connections** Introduction to welded connections; types of welded joints; advantages and disadvantages of welded connections; important specifications; design stress in welded joints; reduction in design strength for long joints; design and analysis of welded connections. Design of tension members; design strength of tension member; design procedure for tension members.
Unit IV	**Design of Compression Members** Buckling class of section; slenderness ratio; effective length & actual length; shapes of compression members (single and combined sections); introduction to composite sections i.e. lacing and battening systems; design of column base
Unit V	**Design of Beams** Plastic moment carrying capacity of a section; sectional classification; design procedure; bending strength of laterally supported beams; shear strength of laterally supported beams; deflection limits; web buckling; web crippling; flange curtailment; introduction to built up sections; purlin design; design of grillage beams.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology :

Reference Books :

1. Structural Steel Drafting and Detailing by R.B. Shivagunde & R.B. Asthana
2. Analysis of structures by Thandavamo
3. Design of steel structure by Bhavikatti (S.S.)
4. Design of steel structures by Negi
5. Limit State Design of Steel Structure by Duggal S K
6. Structural Plastic Selection Manual by ASCE
7. Design of Steel Structures by B. C. Punmia
8. Steel Table by Agor R

Semester : **Sixth** **3rd Year**

Subject Name : **ARCHITECTURAL DESIGN–IV & FIELD TRIP**

Subject Code : **6JAR5**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
-	8	100	25	25	67	100	45	250	112	8

Objective : Understanding correlation between function, structure, material, construction services.

Content : Design of a building to understand the relation between function and structure;

The idea of form follows function and vice versa;

The structural system as a design element, this design concept is to be constructed with the understanding of material and construction techniques and various services needed for the functions of the building.

Notes :

Exercise / Teaching Methodology :

Project : Design of multistory residential apartment building or commercial building or multiuse public building.

Reference Books :

1. 25 Apartments & Lofts under 1000 Square feet Truelove by (James Grayson)
2. Asian Apartments by Felerbend
3. Malls & Department Store by Chris Van Uffelen
4. Design Apartments
5. New Apartment Design
6. Time Saver Standards for Building Types by Dechiara & Others
7. The Elements of Style by Chlloway (Stephen)
8. Time Saver Standards for Urban Design by Donald Watson
9. Design Elements: Form & Space by Dennis M. Puhalla
10. Time saver standards for Landscape Architecture (II edition) by Charles W. Harris & Micholas T. Dines
11. The City Shaped - Urban Patterns and Meanings Through History by Spiro Kostof
12. The Urban Pattern by Gallion (B)

Semester : **Sixth** **3rd Year**

Subject Name : **WORKING DRAWINGS**

Subject Code : **6JAR6**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
-	3	40	10	10	27	40	18	100	45	3

Objective : Architectural detailing and execution drawings.

Unit I	Introduction to various building components and precise purpose of set of working drawings. Study of each drawing with reference to specification & schedules of various building materials. Preparing Construction drawings - plan, section, elevations, details, electrical, plumbing finishes, flooring, etc.
Unit II	Preparations of check list as guide for list of working drawings. Study of building byelaws for various construction details. Method of representing various contents & specific information in working drawings. Preliminary estimates.
Unit III	Preparation of municipal drawings and importance of working drawing as a legal document and tender document.
Unit IV	One set of working drawing of any load bearing structure along with large-scale details of any specifically designed situations.
Unit V	List of drawings (Sample) • Corporation drawing / Municipal Drawing • Center line plan • Excavation plan • Footing layout plan, footing detail • Beam (ground beam and plinth beam),beam detail • Sill level plan, schedule of openings • Lintel level plan • Slab level ,slab beam detail • Frame detail etc.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology :

Project : Multistory apartment building or commercial building in urban context.

Reference Books : 1. The Professional Practice of Architectural Working Drawings by Osamu A. Wakita

Semester : **Sixth** **3rd Year**

Subject Name : **BUILDING ECONOMICS**

Subject Code : **6JAR7**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	1	40	10	10	27	40	18	100	45	2

Objective : To develop an Economics base for Architecture

Unit I	General economic concepts, demand and supply consumption, production distribution and its relevance to economics, Money, banking and bank credits, cost and cost indices inflation and inflationary pressures.
Unit II	Economics of private and public housing development, Concepts of Project Life Cycle from pre-feasibility studies to monitoring and evaluation.
Unit III	Introduction to Social Cost Benefit Analysis, Economics of use of different building materials and construction methods (labor vs. capital intensive).
Unit IV	Pricing of utilities and services, Concept of Toll and User Charges, Globalization and impact of global economy on India.
Unit V	General economic concepts, demand and supply consumption, production distribution and its relevance to economics, Money, banking and bank credits, cost and cost indices inflation and inflationary pressures.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Group work like preparing project report for institutional finance or proposals for building maintenance services or alike followed by seminars and presentations.

Reference Books :

1. Managerial Economics by Raj Kumar & Kuldip Gupta
2. Engineering Economics by R.Panneerselvam
3. Managerial Economics by V L Mote
4. Managerial Economics by D N Dwivedi
5. Principles of Economics by Karl E. Case & Ray C. Fair
6. Bridge Design for Economy & Durability by Pritchard (Brian)
7. Urban Economic Development in india by Bawa

Semester : **Sixth** **3rd Year**

Subject Name : **BUILDING CONSTRUCTION–VI**

Subject Code : **6JAR8**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	3	40	10	10	27	40	18	100	45	4

Objective : To study construction of north light and aluminum sections.

Unit I	Sky Light, North Light.
Unit II	**Curtain walls** • Introduction to curtain wall construction, its advantages, shading, structural glazing, etc. • Metal and aluminum sectioned curtain wall. • R.C.C. curtain wall • Special purpose curtain wall with reflective glazing, insulation, etc.
Unit III	Structural Glazing, Mental Cladding,
Unit IV	Section windows, Aluminum windows.
Unit V	Pre-cast construction.

Notes :

1. Mid Term Exam shall be as of Unit I to III.
2. There shall be regular site visits to buildings, under construction or constructed, to explain the above topics. Use of audio-visuals should be stressed.
3. Sessional work shall be done as scaled drawing on drawing sheets and freehand drawings along with occasional visits to construction sites.

Exercise / Teaching Methodology: Preparing construction drawings based on above topics. Preparing report of a building selected from site and presentation.

Reference Books :

1. Building Construction by Varghese
2. Barry's Introduction to Construction of Buildings by Stephen Emmitt & Christopher Gorse
3. Handbook of Building Construction Vol-II by M M Goyal
4. Building construction illustrated by Ching
5. Building Constructions by Rangwala (S.C.)
6. Building Construction by Rangwala
7. Building Constructions Illstrated by Ching (Francis D K)
8. The Text Book of Building Construction by Bindra Arora
9. The Construction of Buildings by Barry R
10. Bulding Construction by Punmia B C
11. Bulding Construction Hand Book by Chudley & Other
12. Building Construction Vol. I-IV by Mckay W.B.
13. Carpentry and Building Construction by Feirer & Hutchings
14. Building Construction by Sushil Kumar
15. Mitchell's Introduction to Building by Roger Greeno & Derek Osbourn

Semester : **Sixth** **3rd Year**

Subject Name : **ELECTIVE–II - CONSTRUCTION MANAGEMENT**

Subject Code : **6JAR9.1**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	1	40	10	10	27	40	18	100	45	2

Objective : To understand the principles and need of construction management.

Unit I	**Introduction:** • Introduction to project management concepts, objectives, goals and different aspects of management. • Traditional management system. • Gantt's approach, bar charts, project programming, time estimates etc. • Need of Construction Management: Importance and aspects • Role of Architect in Construction Management • Cost Management
Unit II	• Project programming, • Resource balancing, • Phasing of activities, • Programme scheduling, • Project control, reviewing, updating and monitoring, • Modern management concepts.
Unit III	• Project Assessment & project cost jobs size, divisions of responsibilities, liason with owners and their representatives, feasibility study, project report, construction-financing facilities etc.
Unit IV	**Construction Management:** • Conditions of contract, their application, quality and quantity controls, time and cash contract, recording, checking and certifying with coordination of all building activities. • Safety Management • Total Quality Management (TQM) • Risk Management
Unit V	**Project monitoring:** • C.P.M. P.E.R.T. & other one-dimensional techniques for project planning scheduling and control.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Preparation of reports. Analytical and illustrative exercises of above topics in the form of papers and seminars

Reference Books :

1. Construction Management & Mach. by Gupta & Gupta
2. Construction Management & Accounts by N.L.Panday

Semester : **Sixth** **3rd Year**

Subject Name : **ELECTIVE–II – SUSTAINABLE ARCHITECTURE**

Subject Code : **6JAR9.2**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	1	40	10	10	27	40	18	100	45	2

Objective : To develop understanding of other related dimensions of Architecture

Unit I	**Introduction to Sustainable Development and Architecture** a. Definitions and Principles b. Environmental Impact of Buildings c. Sustainable design priorities d. Cultural and Economic aspects e. Life Cycle Design f. Selected Examples of Sustainable Architecture – Vernacular, Historical and Contemporary
Unit II	**Sustainable Building Materials and Technology** Sustainable building materials and technologies are being introduced in the building industry every day. These are being codified and standardized. We are living in an era of catalogue architecture, this unit would therefore would lay more emphasis on traditional building systems, methodologies and on the use of alternate/ substitute and environment friendly materials, local and/ or low coast building materials which are cost effective, environment friendly and appropriate to the context of the site, climate and culture. ***Topics to be covered:*** **1. Bamboo** a. Traditional Methods b. Rope joints and split bamboo c. Bamboo as roofing, wall and floor material d. Insulation material and bamboo mats **2. Wood** a. Traditional methods and classification b. International and National Certifications c. Reconstructed timber i. Plywood ii. Block board iii. MDF, HDF etc. iv. Particle board v. Veneers d. Types of joints and workshops **3. Mud** a. Traditional and vernacular methods in India b. Rammed earth const. c. Auroville construction d. Mud/ clay bricks

	4. **Conventional Construction Material** a. Brick b. Cement and concrete c. Steel and iron 5. **Contemporary innovations in sustainable construction material** 6. **Recycled Building Materials** 7. **Life cycle of construction material**
Unit III	**Ecology and Environmental Management** With global warming and environment protection major areas of concern across nations, environmental management course is a critical area of study for all Architects. This unit, thus covers the concepts and basic understanding of sustainable design and development with a special concern for ecosystem benefits and impacts at the site, local, regional, and global scales.
Unit IV	**Integrating the concepts of Climatology and Building design for sustainable building** A very important component of sustainability in buildings has to do with the fact that they have to respond to the climate in which they are sited. This unit aims to cover the various climates, mainly in India, and the implications of each for building design in these respective climates. It shall also cover concepts of human thermal comfort and its measurement.
Unit V	**Energy Efficient Building Design – Theory and Technologies** The unit will cover the understanding of design and construction techniques for reducing load, and passive/ hybrid design strategies to provide low energy heating and cooling in buildings while maximizing effective use of daylight.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

:

Reference Books : 1. Sustainable Ecosystems by Battle (Guy)

Semester : **Sixth** **3rd Year**

Subject Name : **ELECTIVE–II**

LOW COST CONSTRUCTION AND TECHNIQUES

Subject Code : **6JAR9.3**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	1	40	10	10	27	40	18	100	45	2

Objective : To develop understanding of other related dimensions of Architecture

Unit I	Introduction to Low Cost Building Design (Planning & Designing aspects) & Sustainability and components of buildings influencing the cost
Unit II	Evaluation of building forms based on functions, materials and construction techniques.
Unit III	Prefabrication, Modular Coordination, Fly ash, Rationalization, Cost and Usability
Unit IV	Low cost building materials, methods and techniques by CBRI, HUDCO, Development Alternatives, Laurie Baker, Anil Laul, Revati Kamathetc.
Unit V	Traditional Materials & Techniques • Publications of COSTFORD

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

:

Reference Books :

1. Hand book of Low Cost housing by A.K. Laul
2. Laurie Baker – Life, Works and Writing by Gautam Bhatia
3. Low Cost Architecture by Joseph Maria Minguet

Semester : **Sixth** **3rd Year**

Subject Name : **ELECTIVE–II - DESIGN FOR DISABLED**

Subject Code : **6JAR9.4**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	1	40	10	10	27	40	18	100	45	2

Objective : To develop understanding of other related dimensions of Architecture

Unit I	Introduction of the Subject and Defining Disability. A. In physical terms, the provision of a barrier-free environment can be undertaken in four complementary domains: • Inside buildings; • In the immediate vicinity of buildings; • On local roads and paths; • In open spaces and recreational areas. B. The target group is composed of five major categories: • Wheelchair users • People with limited walking abilities • The sightless • The partially sighted • The hearing impaired
Unit II	Understanding the Basic Design Issues and Anthropometrics Related to Various Disabilities.
Unit III	**Design Considerations** **A. Architectural design considerations:** • Ramp • Elevators • Lifts • Stairs • Railings and handrails • Entrances • Vestibules • Doors • Corridors • Rest rooms B. Urban Design Considerations: • Obstructions • Signage • Street Furniture • Pathways • Curb Ramps • Pedestrian Crossing • Parking

Unit IV	**Accessibility Requirements of Selected Building Types.** • Residential buildings • Office Buildings • Commercial Buildings • Assembly halls • Cafeterias and Restaurants • Hotels • Hospitals and Health facilities • Educational Building • Libraries • Sports Building • Public Transit Buildings • Industrial Buildings
Unit V	Implementation Checklist for Designers and Inspectors to identify and Assess Physical Barriers in the Built-Up Environment, for both new and Existing Constructions.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

:

Reference Books :

1. Council of Architecture
2. Design for Aging Review by Yee (Roger)
3. A Design Manual: Living for the Elderly by Eckhard Feddersen
4. Design Manual for a Barrier Free Built Environment by Ar. Yatin Pandya

Semester : **Sixth** **3rd Year**

Subject Name : **COMPUTER APPLICATION IN ARCHITECTURE–IV**

Subject Code : **6JAR10**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
-	2	40	10	10	27	40	18	100	45	2

Objective : Three dimensional explorations and presentations.

Content : Making Drawing in Revit,
Architectural Applications and Rendering,
Digitizing Maps,
Creative Explorations on Computers.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Preparing drawings based on above topics for selected building.

Reference Books :

1. Computer Fundamentals by Singh
2. Fundamental of Computers by Lamba (C.S.)
3. Fundamentals of Computer by Rajaraman
4. Introduction to Computer by Norton, P.
5. Foundations of Computing by Sinha & Sinha

Semester : **Sixth** **3rd Semester**

Subject Name : **EDUCATIONAL TOUR**

Subject Code : **6JAR11**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
-	-	40	10	10	27	40	18	100	45	3

Objective : Practical understanding of architecture and people.

Content : Visit to places with historical buildings and contemporary buildings and studying the Architecture, use of space and experience of space. Documenting the building through sketches, photography and drawings.

Notes :

Exercise / Teaching Methodology

:

Reference Books :

B.Arch, Semester-VII, IVyr. (5 yrs Degree Course)

THEORY

Sr. Nos.	Code No.	Subjects	L	T	Exam. Hrs.	30% Mid Term Ass.				70% End Term Ass.	Min. Pass. Marks for 70%=45 %	Total Marks	Min. Pass. Marks =(45 %)	Credits
						Assignment 5	Mid Term 15	Attendance 10	Min. Pass. Marks for 30%=45 %					
1	7JAR1	Contract Documents & Byelaws	1	1	2	5	15	10	13	70	31	100	45	2
2	7JAR2	Building Services-III (Mechanical Services)	2	1	2	5	15	10	13	70	31	100	45	3
3	7JAR3	Building Science-II (Acoustics & Illumination)	2	1	2	5	15	10	13	70	31	100	45	3
4	7JAR4	Architectural Structures-VII	1	1	3	5	15	10	13	70	31	100	45	2
5	7JAR5	Introduction to Settlement Planning	1	1	2	5	15	10	13	70	31	100	45	2
		SUB TOTAL	7	5	11	25	75	50	65	350	155	500	225	12

SESSIONALS

Sr. Nos.	Code No.	Subjects	L	S	60% Mid Term Ass.				40% End Term Ass.	Min. Pass. Marks for 40%=45 %	Total Marks	Min. Pass. Marks =(45%)	Credits
					Assignment 40%	Mid Term 10%	Attendance 10%	Min. Pass. Marks for 60%=45 %					
6	7JAR6	Architectural Design-V & Field Trip	_	8	100	25	25	67	100	45	250	112	8
7	7JAR7	Advanced Building Construction	1	2	40	10	10	27	40	18	100	45	3
8	7JAR8	Introduction to Settlement Planning (studio)	1	3	40	10	10	27	40	18	100	45	4
9	7JAR9	Dissertation	_	4	80	20	20	54	80	36	200	90	4
10	7JAR10	Elective 7JAR10.1 Alternate Energy systems in Architecture 7JAR10..2 Vernacular Architecture	1	1	40	10	10	27	40	18	100	45	2
11	7JAR11	Discipline & Extra Curricular Activities	–	–	-	-	-	-	-	-	-	-	Non-Credit
		SUB TOTAL	3	18	300	75	75	202	300	135	750	337	21
		GRAND TOTAL	33 HRS./ WEEK								1250	625*	33

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Semester : **Seventh** **4th Year**
Subject Name : **CONTRACT DOCUMENTS & BYELAWS**
Subject Code : **7JAR1**

L	T/S	Exam HRS.	30% Mid Term Assessment				70% End-Term assessment	Min. passing marks for 70% =(45%)	Total Marks	Min.Pass Marks =(45%)	CREDITS
			Assignment 5	Mid-Term 15	Attendance 10	Min. passing marks 30%=45%					
1	1	2	5	15	10	13	70	31	100	45	2

Objective : Architectural practice and building regulations.

Unit I	**Contracts:** Nature of building contracts: Tenders - calling, scrutiny and recommendations, open and selective tender systems; two stage tender scrutiny process. Pre-tender qualifications and registrations of contract: obligations and responsibilities of clients, contractors and architects.
Unit II	**Building Bye-Laws-I** • Building bye-laws – their need and importance, advantages. • Study of building bye-laws - means of access, open spaces, parts of buildings (as per NBC). • Building bye-laws with respect to various plot sizes, building types and height restrictions, air funnel. • Lighting, sound and HVAC (as per NBC). • Fire fighting regulations • Parking regulations • Deposits, Labor Laws and Obligations: disputes and settlement of disputes.
Unit III	**Building Bye-Laws-II** • Building bye-laws for special zones viz., airport, hospitals, residential, commercial, Cinema theatres, SEZ etc. • Development control and aesthetic control bye-laws, sky plane, front and rear angles. • Other building standards including state and municipal byelaws • Building by-laws: ground coverage, FSI calculations, building height regulations, building use regulation, NA – NOC, BU certificate. Buildings services approvals and completion certificate procedure.
Unit IV	**Development controls at settlements level.** • Eminent domain, police powers, zoning controls, etc. • Sub-division regulations. • Land development standards and municipal byelaws in various states.

Notes : Mid Term Exam shall be as of Unit I to III.
Exercise / Teaching Methodology : Study of NBC, Compendium.
Reference Books :

1. Architects Act 1972.
2. Publications of Handbook on Professional practice by IIA.
3. Publications of Council of Architecture-Architects (Professional conduct) Regulations 1989, Architectural Competition guidelines
4. Roshan Namavati, Professional practice, Lakhani Book Depot, Mumbai 1984.
5. J.J.Scott, Architect's Practice, Butterworth, London 1985.
6. Ar. V.S. Apte, Architectural Practice and Procedure, Padmaja Bhide, Pune, 2008.
7. Development Regulations of Second Master Plan for Chennai Metropolitan Area – 2026.
8. Chennai City Corporation Building Rules 1972.
9. Persons with Disabilities Act.
10. T.N.D.M. Buildings rules, 1972.

Semester : **Seventh** **4th Year**

Subject Name : **BUILDING SERVICES–III (Mechanical Services)**

Subject Code : **7JAR2**

L	T/S	Exam HRS.	30% Mid Term Assessment				70% End-Term assessment	Min. passing marks for 70% =(45%)	Total Marks	Min.Pass Marks =(45%)	CREDITS
			Assignment 5	Mid-Term 15	Attendance 10	Min. passing marks 30%=45%					
2	1	2	5	15	10	13	70	31	100	45	3

Objective : Understanding mechanical services for building design.

Unit I	**Basic principles of refrigeration, refrigeration cycle and system components.** • Basic operation of refrigeration systems • Principle components of refrigeration systems • Thermodynamic principles of refrigeration cycle • Safety considerations
Unit II	**Air cooling and air conditioning, planning and design considerations** • Basic operation and functioning of air cooling and air conditioning systems • Principle components of air cooling and air conditioning systems • Safety considerations • The fundamental principles of Psychometrics and heat transfer. • Methods of Air conditioning, Fittings, fixtures, accessories and equipment used in various types of air-conditioning along with their construction details and basic load calculations. • A.C. duct design and layout with constructional details. (Including calculations.) • Planning and design considerations of air cooling and air conditioning systems
Unit III	**Psychometric chart and its use.** • Understanding the concept of psychometrics. • Thermodynamic properties of moist air. • Understanding the concept of Psychometric Chart. • Use of the Psychometric Chart.
Unit IV	• Lifts and movable walkways, escalators including study of their operation, function, layouts and design details. • Appliances, equipments and systems for fire safety of buildings, (particularly high rise) including study of their function, operation and construction details. **Lifts, grouping of lifts, return time, design of lift banks for carrying capacity and travel time, installation requirements, escalators.** • Lists and escalators, an overview • Typical parameters in design of elevator systems (lifts and escalators) in a building. • Location of elevators (lifts and escalators). • Lift technologies. ✓ Traction lifts a. Geared lifts b. Gearless lifts c. Machine room less lifts ✓ Hydraulic lifts • Lift components and types • Design considerations and installation methods of elevator systems (lifts and escalators).

Unit V	Fire extinguishing system, warning systems, fire resistant doors, planning of buildings for fire escapes, Solar water heating systems.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Preparation of reports, visit to construction site and documentation. Market survey to study mechanical products.

Reference Books :

1. E.P.Ambrose, Electric Heating, John Weley & Sons Inc., New York, 1968
2. Philips Lighting in Architectural Design, McGraw Hill. New York, 1964
3. R.G.Hopkenson & J.D.Kay, The lighting of Buildings, Faber & Faber, London, 1969 Conveying systems
4. Elevators, Escalators, Moving Walkways – Manufactures catalogues
5. Handbook of building Engineers in metric systems, New Delhi 1968
6. National Building Code

Semester : **Seventh** **4th Year**

Subject Name : **BUILDING SCIENCE-II (Acoustics & Illumination)**

Subject Code : **7JAR3**

L	T/S	Exam HRS.	30% Mid Term Assessment				70% End-Term assessment	Min. passing marks for 70% =(45%)	Total Marks	Min.Pass Marks =(45%)	CREDITS
			Assignment 5	Mid-Term 15	Attendance 10	Min. passing marks 30%=45%					
2	1	2	5	15	10	13	70	31	100	45	3

Objective : Understanding Acoustics and Illumination in building designs.

Unit I	**Introduction about Sound and Noise:** • Fundamental Properties and characteristics of sound. (Frequency, wavelength, velocity, pressure, pressure level, intensity, pitch, tone, loudness, timbre etc.) • Noise: Physiological and Psychological impact of noise on human beings. • Noise criteria for various spaces viz: Living areas, Educational areas, Offices, Shopping etc. • Measures to control noise nuisance (Air borne and Structure borne) in residential, educational, commercial, and Industrial areas along with calculations. **A. Basic Terminology and definitions:** • Physics of sound • Sound • Intensity & loudness • Characteristics of sound-frequency, amplitude, speed. • Reverberation time, absorption coefficient, echo, all the units related to sound • Effect of physical condition on sound-temperature, humidity, pressure
Unit II	**Behavior of Sound:** • Behavior of sound in open and enclosed spaces with reference to the form of enclosures, and various surface finishes. (Reflection, Absorption, Diffraction, Insulation, Transmission, Echo, Resonance, Reverberation etc.) • Acoustical materials along with their properties, behavior, selection criteria, use, and construction details. • Criteria for acoustic environment-type of Building, usage, Geometry shape, Surfaces, Sound absorption, Selection of acoustical materials & their application – for wall / partition, ceiling, floor • Noise control techniques and their applications. Predictions of acoustical conditions and approach to designing enclosure for predetermined acoustical responses, corrective of existing deficient enclosures.
Unit III	**Acoustical Design:** • Reverberation time, Sabine's formula along with the limitations and prerequisites. • Acoustical design measures for live acoustical environment in enclosures used for various purposes viz. Classrooms, Lecture halls, Auditoriums, Seminar Halls, Conference rooms, Meeting rooms, Theatres, Music concert halls, Opera houses, Dance halls, Open air theatres, Movie Theatres, Meditation centers, Group prayer halls etc. • Noise-physiological and psychological effects, transmission loss, flanking of sound, structure borne sound and noise from different mechanical equipments.

Unit IV	**Illumination:** • Light and its propagation, reflection, radiation, transmission and absorption. • Definitions and units of flux, solid angles, luminous intensity, brightness etc. • Laws of illumination, types of illumination schemes – direct, semi direct, indirect and diffused lighting and their design considerations. • Principles of lighting including calculations for desired illumination on different working planes for various activities like reading, writing, drawing, domestic works, industrial jobs etc. • Designing of lighting for various types of buildings like residential, educational, offices etc. • Lighting for special purposes viz. Exhibitions, Theaters, Stadiums, Swimming pools, Cinemas, Assembly halls, Restaurants, Religious buildings etc along with study of Direct, Indirect, Flood, Concealed, Focus light etc. • Over illumination controlling measures. • Laws of illumination, Design for lighting, classification of lighting system, direct, diffused, indirect etc. Artificial light sources, types and their use limitations.
Unit V	**Illumination Method:** • Standards of Illumination required for various activities. • Light flux method for calculation of number of lamps for illumination. • Types of Luminaries for interior and exterior lighting. Residential, commercial, industry, flood and street lighting. • Tests before commissioning of electrical services. • Introduction to sound reinforcing system- amplification and distribution. Introduction to illumination. Use of artificial lighting as an element in architectural scheme particularly exhibitions, theaters, offices and stores etc. lighting for road traffic, decorative and flood lighting.

Notes : Mid Term Exam shall be as of Unit I to III.
Sessional assignment will be based on above units in the form of seminars, study and reports.
In theory examination there will be a separate question from each unit with choice within the unit/question. All units/questions will be compulsory.

Exercise / Teaching Methodology
: Medium size acoustical design supplemented with drawing and calculations. Qualitative and quantitative aspects of lighting supported by actual exercises.

Reference Books :

1. Dr.V.Narasimhan - An Introduction to Building Physics - Kabeer Printing Works, Chennai-5 - 1974.
2. D.J.Groomet - Noise, Building and People - Pergumon Press - 1977.
3. Thomas D.Northwood - Architectural Acoustics - Dowden, Hutchinson and Ross Inc. – 1977.
4. B.J.Smith, R.J.Peters, Stephanie Owen - Acoustics and Noise Control - Longman Group Ltd., - New York, USA - 1982.
5. David Eagan concepts in Architectural Acoustics.
6. Harold Burris – Meyer and Lewis Good friend, Acoustics for Architects – Reinhold
7. Noise & Vibration Control in Building by Jones (Robert S.)
8. Sound Space: Architecture for Sound and Vision by Peter Grueneisen
9. Ultimate Lighting Design by Herve Descottes

Semester : **Seventh** **4th Year**

Subject Name : **ARCHITECTURAL STRUCTURE-VII**

Subject Code : **7JAR4**

L	T/S	Exam HRS.	30% Mid Term Assessment				70% End-Term assessment	Min. passing marks for 70% =(45%)	Total Marks	Min.Pass Marks =(45%)	CREDITS
			Assignment 5	Mid-Term 15	Attendance 10	Min. passing marks 30%=45%					
1	1	3	5	15	10	13	70	31	100	45	2

Objective : Conceptual study of Advance Frame construction structures with reference to high rise buildings and surface structure.

Unit I	Pile and raft foundations Beams and columns and various types of supporting systems cantilever and propped cantilever, Continuous and fixed beams and their behavior under load.
Unit II	Definition of determinate and indeterminate structures, redundant frames static and kinematic indeterminacy of beam.
Unit III	Cylindrical, parabolic and flat arches, advantages and limitations.
Unit IV	Simple framed structures and trusses advantages and limitations.
Unit V	• Conceptualizing and understanding of surface structures shells. Domes and folded plates. Slope deflection and Knai's methods for analysis of continuous beams and simple portal frames. • Pre-stressing – Methods and losses in pre-stressing, comparison of RCC and pre stressing. Pre stressing concrete beams.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

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Reference Books :

1. Theory of Structures by Ramamrutham & Nara
2. Theory of Structures by B. C. Punmia
3. Theory of Structures by Khurmi R.S.
4. Steel Table by Agor R

Semester : **Seventh** **4th Year**

Subject Name : **INTRODUCTION TO SETTLEMENT PLANNING**

Subject Code : **7JAR5**

L	T/S	Exam HRS.	30% Mid Term Assessment				70% End-Term assessment	Min. passing marks for 70% =(45%)	Total Marks	Min.Pass Marks =(45%)	CREDITS
			Assignment 5	Mid-Term 15	Attendance 10	Min. passing marks 30%=45%					
1	1	2	5	15	10	13	70	31	100	45	2

Objective : To Understand architecture as an integrated fabric of settlement.

Unit I	Definition, planning as an architectural expression and form of developing a human settlement. A. Definition of settlement and its hierarchy (isolated dwellings, hamlet, village, towns, city, conurbation) under following parameters: • Area • Site • Population • Functions • Situation • Shape B. Settlement patterns • Linear • Dispersed • Nucleated • Planned C. Function of settlement • Residential • Administrative • Industrial • Commercial • Services • Tourism D. Ancient civilizations • Sumerian towns • Egyptian civilization • Greek civilization • Roman civilization • Medieval cities

	• Renaissance period • Indus Valley Civilization • Vedic / Vastu Civilization
Unit II	Theories of city planning, new towns and cities. To study the planning theories (concepts) and significantly relate them with the examples from past and present time city plans. • Garden city concept • Geddisain triad • Neighborhood concept • Radburn theory • City beautiful • Broad acre city • Satellite town • Ribbon development • Ekistics
Unit III	History of city planning. Concepts of urban space, survey, techniques, zoning and land use, neighborhood concepts, central business district, site planning, urban and rural housing, urban transportation.
Unit IV	Urban renewal and redevelopment: Understanding the term urban renewal and Sustainable development. Study of various urban renewal programmes of JNNURM.
Unit V	Present day planning in India: Understanding the concept and formulation of a master plan document and its significance in the overall balanced development of a city/ smart city etc.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Paper presentation. Site visit to various areas of the city.

Reference Books :

1. Urban and Regional Planning by Peter Hall and Mark Tewdwr-Jones
2. Urban Planning Methods by Ian Bracken
3. Traffic Engineering and Transport Planning by L.R. Kadiyali
4. Ancient Indian Town Planning by Kaushik (Akshat)
5. Metric Handbook Planning &Design Data by Adler (David)
6. Planning & Urban Design Standards by Sendich (Emina)
7. Text book of town Planning by Bandyopadhyay
8. Town Planning by Rangwala
9. Urben Planning Guide by ASEC
10. Transport, Terminals and modal interchanges: Planning and Design by Christopher Blow
11. Town Planning regeneration of Cites by Ashutosh Joshi

12. Urban Planning and Governance by A.K. Jain
13. Sustainable Urban Planning by Joy Sen
14. Master Plan for Delhi 2021 by Vivek Kumar Garg
15. Introduction to Urban Studies by Roberta Steinbacher\
16. Representation of Places (Urban Planning) by Peter Bosselmanr
17. Revisiting Land Acquisition and Urban Process by A. K. Jain
18. Urban Planning in India by Amiya Kumar Das
19. Urban Planning Problems by Cordon E. Cherry
20. Urban Transformatioon : Transit Oriented Debeloprr by Ronald A. Altoon
21. Urbanisation in India by Isher Judge Ahluwalia
22. Planning the Twentieth-Century City by Stephen V Ward

Semester : **Seventh** **4th Year**

Subject Name : **ARCHITECTURAL DESIGN-V & FIELD TRIP**

Subject Code : **7JAR6**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
-	8	100	25	25	67	100	45	250	112	8

Objective : Understanding building in urban context.

Content : To understand the issue of building and context, building bylaws, urban design.

The design of building will look into aspects of commercial feasibility and building program; Architectural dimension with issues of services.

Notes :

Exercise / Teaching Methodology :

Project : Designing a urban insert – commercial building, Institutional building with a auditorium. Public building.

Reference Books :

1. Best Design Hotels in Europe II by Kunz (Martin Ni Chalas)
2. Best Design Wellness Hotels by Kunz (Martin Ni Chalas)
3. Best Designed Hotels in Europe 1
4. Cinema Builders by Heathcote (Edwin)
5. New Hotel Architecture & Design by Collins (David)
6. Hotel Buildings: Construction and Design Manual by Manfred Ro
7. Educational Facilities by Arian Mostaedi
8. Hotel Design by Daab
9. California Aerospace Museum by Gehry (Frank)
10. Time Saver Standards for Building Types by Dechiara & Others
11. The Elements of Style by Chlloway (Stephen)
12. Time Saver Standards for Urban Design by Donald Watson
13. Design Elements: Form & Space by Dennis M. Puhalla
14. Time saver standards for Landscape Architecture (II edition) by Charles W. Harris & Micholas T. Dines
15. The City Shaped - Urban Patterns and Meanings Through History by Spiro Kostof
16. The Urban Pattern by Gallion (B)

Semester : **Seventh** **4th Year**

Subject Name : **ADVANCED BUILDING CONSTRUCTION**

Subject Code : **7JAR7**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	2	40	10	10	27	40	18	100	45	3

Objective : Study of advance construction system in architecture.

Unit I	Advanced Foundations–Pile and raft foundations.
Unit II	Advanced methods of multistory building construction- Lift slab construction, slip form construction etc.
Unit III	Space frames. Unconventional buildings like TV towers etc.
Unit IV	Geodesic domes- principles and construction.
Unit V	Disaster resistant construction system.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Preparing Construction drawing based on above topics. Preparing report of a building selected from site and presentation.

Reference Books :

1. Building Construction by Varghese
2. Barry's Introduction to Construction of Buildings by Stephen Emmitt & Christopher Gorse
3. Handbook of Building Construction Vol-II by M M Goyal
4. Building construction illustrated by Ching
5. Building Constructions by Rangwala (S.C.)
6. Building Construction by Rangwala
7. Building Constructions Illstrated by Ching (Francis D K)
8. The Text Book of Building Construction by Bindra Arora
9. The Construction of Buildings by Barry R
10. Bulding Construction by Punmia B C
11. Bulding Construction Hand Book by Chudley & Other
12. Building Construction Vol. I-IV by Mckay W.B.
13. Carpentry and Building Construction by Feirer & Hutchings
14. Building Construction by Sushil Kumar
15. Mitchell's Introduction to Building by Roger Greeno & Derek Osbourn

Semester : **Seventh** **4th Year**

Subject Name : **INTRODUCTION TO SETTLEMENT PLANNING (STUDIO)**

Subject Code : **7JAR8**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	3	40	10	10	27	40	18	100	45	4

Objective : To study design of settlements.

Contents : Designing a settlement layout showing notion of urban space, neighborhood, typology, unit type, land use, zoning, transportation, density, etc.

Exercise / Teaching Methodology :

Project : Neighborhood design. Site visits of Govt. housing and private development.

Reference Books :

1. Urban and Regional Planning by Peter Hall and Mark Tewdwr-Jones
2. Urban Planning Methods by Ian Bracken
3. Traffic Engineering and Transport Planning by L.R. Kadiyali
4. Ancient Indian Town Planning by Kaushik (Akshat)
5. Metric Handbook Planning &Design Data by Adler (David)
6. Planning & Urban Design Standards by Sendich (Emina)
7. Text book of town Planning by Bandyopadhyay
8. Town Planning by Rangwala
9. Urben Planning Guide by ASEC
10. Transport, Terminals and modal interchanges: Planning and Design by Christopher Blow
11. Town Planning regeneration of Cites by Ashutosh Joshi
12. Urban Planning and Governance by A.K. Jain
13. Sustainable Urban Planning by Joy Sen
14. Master Plan for Delhi 2021 by Vivek Kumar Garg
15. Introduction to Urban Studies by Roberta Steinbacher\
16. Representation of Places (Urban Planning) by Peter Bosselmanr
17. Revisiting Land Acquisition and Urban Process by A. K. Jain
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19. Urban Planning Problems by Cordon E. Cherry
20. Urban Transformatioon : Transit Oriented Debeloprr by Ronald A. Altoon
21. Urbanisation in India by Isher Judge Ahluwalia
22. Planning the Twentieth-Century City by Stephen V Ward

Semester : **Seventh** **4th Semester**

Subject Name : **DISSERTATION**

Subject Code : **7JAR9**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
-	4	80	20	20	54	80	36	200	90	4

Objective : Research Study

Content : Each student is required to conduct a non design study on topic selected by the student and approved by the department. The study shall be conducted under the guidance of teacher or external expert in the department this dissertation should lead to a design problem to be taken up as a Thesis Topic.

Notes :

Exercise / Teaching Methodology

:

Reference Books :

Semester : **Seventh 4th Semester**

Subject Name : **ELECTIVE - ALTERNATE ENERGY SYSTEM IN ARCHITECTURE**

Subject Code : **7JAR10.1**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	1	40	10	10	27	40	18	100	45	2

Objective : To understand other related dimensions of Architecture.

Unit I	• Introduction; • Present Scenario in India, • Hydel Energy, • Solar Energy, • Wind Energy, • Sustainable Architecture: a) Introduction b) Present Scenario c) Relevance in Indian Context • Tidal Energy / Biogas, • Geothermal Energy,
Unit II	• Green Building Concepts / Role of IGBC
Unit III	• Active & Passive Means of Cooling
Unit IV	• Sources of Energy: a) Renewable b) Non-Renewable
Unit V	• Energy Audit • Energy Consumption

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology :

Reference Books :

Semester : **Seventh** **4th Semester**

Subject Name : **ELECTIVE- VERNACULAR ARCHITECTURE**

Subject Code : **7JAR10.2**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
1	1	40	10	10	27	40	18	100	45	2

Objective : An exposure to the traditional architecture in various parts of the India with respect to the planning aspects, materials used in construction, constructional details and settlement planning.

Unit I	**Introduction to Vernacular Architecture** • Approaches and concepts to the study of Vernacular architecture – Introduction to Kutcha architecture and Pucca architecture • Introduction to Vernacular architecture it's nature, purpose and scope. Study of examples of Vernacular architecture in history of architecture (inside Indian subcontinent) to understand evolution of building forms based on functions, building materials and construction techniques, art & crafts, the local conditions, traditions, climate &geography, religion & culture in the period when they were built
Unit II	**Dravidian South** Planning aspects, materials of construction, Constructional details & Settlement Planning of : • Kerala – Nair houses (Tarawads), Kerala Muslim houses(Mappilah houses), Temples, Palaces and theaters – Thattchushastra. • TamilNadu – Toda Huts, Chettinad Houses (Chettiars) & Palaces • Karnataka – Gutthu houses (land owning community), Kodava ancestral home (Aynmane) • Andhra Pradesh –Kaccha buildings Religious practices, beliefs, culture & climatic factors influencing the planning of the above.
Unit III	**Western Region** Planning aspects , Materials used, Constructional details, Climatic factors influencing the planning of • Jat houses for farming caste, Bhungas(Circular Huts) and Havelis(Pukka houses) of Rajasthan • Pol houses of Ahmedabad - Primitive forms, Symbolism, Colour, Folk art etc in the architecture of the deserts of Kutch & Gujarat state. • Vernacular architecture of Goa.

Unit IV	**Thern and Eastern India** Kashmir – Typical Kutcha houses, mosque, Dhoongas(Boathouses), Ladakhi houses, bridges • Himachal Pradesh – Kinnaur houses • Uttar Pradesh – Domestic housing of Uttar Pradesh • Bengal – Bangla (Rural house form), Aat Chala houses – change from Bangla to Bungalow, Kutcha & Pucca architecture of Bengal. Nagaland – Naga houses & Naga village, Khasi houses Factors influencing the planning aspects, materials of construction & constructional details of the above.
Unit V	Case study/ies of works of architects in contemporary Indian architecture; whose works are influenced by the Vernacular Architecture of the region

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

:

Reference Books :

1. Architecture of the Indian desert , Kulbushan Jain & Meenakshi Jain, Aadi Centre, Ahmedabad
2. The Royal Palaces of India , George Michell, Thames and Hudson Ltd., London
3. Chettiar Heritage, S.Muthiah, Meenakshi Meyappan, Visalakshmi RAMASWAMY, Lokavani-Hallmark Press Pvt. Ltd., Chennai
4. Encyclopaedia of Vernacular architecture of the World, Cambridge University Press
5. Havali – Wooden houses & mansions of Gujarat, V.S.Pramar, Mapin Publishing Pvt. Ltd., Ahmedabad
6. The Tradition of Indian architecture – Continuity & Controversy – Change since 1850, H.R.Tillotsum, Oxford University Press, Delhi
7. VISTARA – The architecture of India , Carmen Kagal. Pub: The Festival of India, 1986.
8. House, Form & Culture , Amos Rappoport, Prentice Hall Inc, 1969.
9. Traditional buildings of India , Ilay Cooper, Thames and Hudson Ltd., London

B.Arch, Semester-VIII, IVyr. (5 yrs Degree Course)

Sr. No	Code Nos	Subjects									Total Marks.	MIN.PASS MARKS=(45%)	CREDITS
1	8JAR1	Practical: Training & its presentation / seminar i) Monthly work reports from architects' office ii) Critical appraisal of built projects iii) field documentation of architectural details iv) site supervision of built projects v) Training reports									300	135	6
Sr. Nos.	Code No.	Subjects	L	S	60% Mid Term Ass.			Min. Pass. Marks for 60%=45%	40% End Term Ass.	Min. Pass. Marks for 40%=45%	Total Marks	Min. Pass. Marks =(45%)	Credits
					Assignment 40%	Mid Term 10 %	Attendance 10%						
2	8JAR2	Discipline & Extra Curricular Activities	–	–	-	-	-	-	-	-	-	-	Non-Credit
		GRAND TOTAL									300	150*	6

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

B.Arch, Semester-IX, Vyr. (5 yrs Degree Course)

Sr. No	Code Nos	Subjects									Total Marks.	MIN.PASS MARKS=(45%)	CREDITS
1	9JAR1	Practical: Training & its presentation / seminar i) Monthly work reports from architects' office ii) Critical appraisal of built projects iii) field documentation of architectural details iv) site supervision of built projects v) Training reports									300	135	6
Sr. Nos.	Code No.	Subjects	L	S	60% Mid Term Ass.			Min. Pass. Marks for 60%=45%	40% End Term Ass.	Min. Pass. Marks for 40%=45%	Total Marks	Min. Pass. Marks =(45%)	Credits
					Assignment 40%	Mid Term 10 %	Attendance 10%						
2	9JAR2	Discipline & Extra Curricular Activities	–	–	-	-	-	-	-	-	-	-	Non-Credit
		GRAND TOTAL									300	150*	6

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Semester	:	**Eight and Ninth 4th and 5th Year**
Subject Name	:	**PRACTICAL TRAINING**
Subject Code	:	**8JAR1 & 9JAR1**

Objective : To expose student to Architectural practice and construction and execution.

Content : Student shall work for a period of 280 days in an office of Architect approved by the department.

She/He shall be submitting monthly work report, critical appraisal of built projects.

Field documentation of architectural details and site supervision of built projects.

Notes :

Exercise / Teaching Methodology

:

Reference Books :

B.Arch, Semester-X, Vyr. (5 yrs Degree Course)

THEORY

Sr. Nos.	Code No.	Subjects	L	T	Exam. Hrs.	30% Mid Term Ass.				70 % End Term Ass.	Min. Pass. Marks for 70%=45%	Total Marks	Min. Pass. Marks =(45 %)	Credits
						Assignment 5	Mid Term 15	Attendance 10	Min. Pass. Marks for 30%=45%					
1	10JAR1	Professional Practice & Management	2	1	2	5	15	10	13	70	31	100	45	3
2	10JAR2	Housing	2	1	2	5	15	10	13	70	31	100	45	3
		SUB TOTAL	4	2	4	10	30	20	26	140	62	200	90	6

SESSIONALS

Sr. Nos.	Code No.	Subjects	L	S	60% Mid Term Ass.				40 % End Term Ass.	Min. Pass. Marks for 40%=45 %	Total Marks	Min. Pass. Marks =(45 %)	Credits
					Assignment 40%	Mid Term 10 %	Attendance 10%	Min. Pass. Marks for 60%=45 %					
3	10JAR3	Elective 10JAR3.1 Urban Conservation 10JAR3.2 Urban Design	2	1	40	10	10	27	40	18	100	45	3
4	10JAR4	Elective 10JAR4.1 Disaster Resistant structure 10JAR4.2 Architecture Development and legislation	2	2	40	10	10	27	40	18	100	45	4
5	10JAR5	Advanced Study of thesis topic	2	1	40	10	10	27	40	18	100	45	3
6	10JAR6	Thesis project	-	6	200	50	50	135	200	90	500	225	6
7	10JAR7	Discipline & Extra Curricular Activities	–	–	-	-	-	-	-	-	-	-	Non-Credit
		SUB TOTAL	6	10	320	80	80	216	320	144	800	360	16
		GRAND TOTAL	26 HRS./ WEEK								1000	500*	22

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Semester : **Tenth** **5th Year**

Subject Name : **PROFESSIONAL PRACTICE & MANAGEMENT**

Subject Code : **10JAR1**

L	T/S	Exam HRS.	30% Mid Term Assessment				70% End-Term assessment	Min. passing marks for 70% =(45%)	Total Marks	Min.Pass Marks =(45%)	CREDITS
			Assignment 5	Mid-Term 15	Attendance 10	Min. passing marks 30%=45%					
2	1	2	5	15	10	13	70	31	100	45	3

Objective : Understanding architectural practice.

Unit I	The architect and his office, relationship with clients, consultants, contractors. Legal responsibilities of architects, code of professional practice, fees, architectural competitions and architects registration act 1972. • Code of professional conduct. • Condition of engagement and scale of professional fees. • Copyright Act as applicable to architectural work. • Architectural competitions. • Concept of Contract. • Duties and liabilities of architects, duties and liabilities of contractors. • Articles of agreement, execution of works and payments. • Laws pertaining to property matters like Right of easements, passage, ancient light etc.
Unit II	Tender and tendering procedures, principle of contact and agreements. Control of constructional operations.
Unit III	Arbitration and its proceedings and awards. Introduction to principles of business management project programming and monitoring.
Unit IV	PERT and CPM network and their analysis Human relation and personnel management.
Unit V	Brief Idea about accounting and book keeping, business correspondence, information storage and retrieval systems.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology : Preparing a report of a study of an Architect's office.

Reference Books :

1. Professional Practice by Dr. Roshan H. Namavati
2. Urban and Regional Planning in India: A Handbook for Professional Practice by S.K. Kulshrestha
3. Quality Management in Cement Con. by Gahlot
4. Compendium of J.D.A. and Allied Laws (Vol. I&II) by Man Singh Gupta
5. Compendium of Municipalities and Allied Laws (Vol. –I) Man Singh Gupta
6. Building Codes Illustrated for Healthcare Facilities by Steven R. Winkel.

Semester : **Tenth** **5th Year**

Subject Name : **HOUSING**

Subject Code : **10JAR2**

L	T/S	Exam HRS.	30% Mid Term Assessment				70% End-Term assessment	Min. passing marks for 70% =(45%)	Total Marks	Min.Pass Marks =(45%)	CREDITS
			Assignment 5	Mid-Term 15	Attendance 10	Min. passing marks 30%=45%					
2	1	2	5	15	10	13	70	31	100	45	3

Objective : Understanding housing as a major element of architecture.

Unit I	Housing system – housing need and options available, National Housing policy, Housing Agencies and their contribution to housing development. Housing finance. Social factors influencing design, affordability, economic factors and housing concepts/ technologies.
Unit II	**Housing scenario:** • Housing scenario in Indian context, Housing shortage in urban and rural areas. • Slum up-gradation, Slums and squatters, Informal housing. • Affordable housing, Core housing, Community housing, Industrial housing. • Low-rise high density, High-rise low density, High-rise high density housing • Site and Services, • Housing Surveys and • Neighborhood Analysis.
Unit III	Different type of housing and housing standards, methodology of formulation standards, relevance of standard in housing development, services, efficiency and user satisfaction.
Unit IV	Housing design process – different stages in project development – layout design including utilities and common facilities, design as a result of bye-laws.
Unit V	**Housing Policies** • Framing housing policy for a proposed scheme with consideration to nature of development. • National and State Housing policies. • Systems approach to housing. • Environmental consideration, housing for disaster prone areas. **Housing finance:** • Role of financial institutions • Co-operative housing schemes • Gramin Bank Model • Government measures for slum up-gradation and rehabilitation.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

: Paper presentation. Site visit to housing areas.

Reference Books :

1. Richard Kintermann and Robert small site planning for cluster Housing van nastrand reinhold company, Jondon/New York 1977.
2. Joseph de Chiara and others – Time saver standards for Housing and Residential development, Mcgraw Hill Co, New York 1995.
3. Forbes Davidson and Geoff Payne, Urban projects Manual. Liverpool University press, Liverpool 1983.
4. Christopher Alexander, A pattern Language, Oxford University press, New York 1977
5. HUDCO publications – Housing for low income, sector model.
6. Time Server Standards for Housing by Chiara Joseph De
7. Urban Housing Forms by Zhou (Jingmin)
8. The Housing Design Handbook a Guide to Goop Practice by Levitt
9. Residental Housing by Clois E. Kicklighter & Joan C. Kicklighter
10. Front to Back: A Design Agenda for Urban Housing by Sally Lewis
11. New Urban Housing by Hilary French
12. Modern Urban Housing in China: 1840-2000 by Lu Junhua

Semester : **Tenth** **5th Year**

Subject Name : **ELECTIVE - URBAN CONSERVATION**

Subject Code : **10JAR3.1**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
2	1	40	10	10	27	40	18	100	45	3

Objective : To understand other related dimensions of Architecture.

Unit I	**Introduction to Conservation** • Definitions: Conservation, Heritage and types of heritage, Degrees/ philosophies of conservation (preservation, restoration, rehabilitation, replication, relocation, adaptive reuse, maintenance), urban redevelopment, urban renewal, etc. • Ethics and principles of building conservation • Process/ procedures of building conservation
Unit II	**Approaches to Conservation** • Occidental and Oriental Approach • Development of Heritage Conservation in India • Approach towards formulation of an Indian Charter
Unit III	**Concepts of Historic Zones** • Introduction: definitions, characteristics and significances of historic zones • Challenges to revitalization of historic zones • Needs of Urban regeneration • Involvement and roles of stakeholders (community, development authorities, municipal corporations, local/ community leaders, etc.) • Approach to regeneration of historic zones
Unit IV	**World Heritage Sites** • What are World Heritage Sites (WHS)? • World Heritage Mission and Structure • Concepts of assessment • International initiatives for Heritage Conservation
Unit V	**Charters** • Introduction to charters: definition, philosophies and need • Charters: SPAB Manifesto, Athens Charter, Venice Charter, European charter for Architectural heritage, Florence Charter, Washington Charter, Nara Document on Authenticity, Burra Charter, International Cultural Tourism Charter, INTACH Charter, ICOMOS Declaration on Heritage and Metropolis in Asia and the Pacific **Legislation and Framework for Conservation in India** **Introduction to Heritage Tourism in India**

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology :

Reference Books :

Semester : **Tenth** **5th Year**

Subject Name : **ELECTIVE - URBAN DESIGN**

Subject Code : **10JAR3.2**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
2	1	40	10	10	27	40	18	100	45	3

Objective : To understand other related dimensions of Architecture.

Unit I	**Introduction to the role and scope of Urban Design:** • Introduction: Relationship with architecture and Town Planning. • Determinants and factors of urban forms such as landform, climate, symbolism, activity patterns, socio-cultural factors, materials, techniques and other contextual factors. Case examples from various periods in history and different parts of the world. • Understanding of differentiation of Architecture, Urban design & planning. • Meaning, scope and purpose of Urban design. • Understanding the Heritage of Urban Design and roots of our Modern Concepts. • Study of built fabric and its relationship with land form and nature
Unit II	**Vocabulary of Urban Design** • Principles of Urban design and Making a Visual survey • Urban Pattern • Grain • Fabric • Texture • Density
Unit III	**Urban Spaces** **A. Streetscape Elements** • Continuous Streetscape; • Connected Sidewalks; • Prominent Gateways; • Focus Areas; • Key Building Frontages; • Key Corner Sites; • Key Vistas; • Public Art; • Off-Street Parking; and, • Attractive Signage. **B. Open Space Elements** • Potential squares; • Landscaped buffers. **C. Connections** • Pedestrian Routes (including crosswalks and mid-block connectors); • Shared Facilities; and, • Public Transit. **D. Green Technologies**

	• Pervious Pavement; • Rain Gardens and Passive Irrigation; • Building Materials; and, • Green Roof and High-albedo/Light-coloured roofing materials. **E. Image of a city (Concepts of image ability, elements of the city image)** • Nodes • Landmarks • Edges • Districts • Path • Local points • Their characteristics, • Role and inter relationship visual survey
Unit IV	• Introduction to analytical techniques in urban design. • Survey techniques in urban design. • Urban design regulations and controls. **A. Scale in urban design** • Scale and human vision • Scale and circulation • Scale in Neighboring Building and Spaces • Scale and Neighborhood size • Scale and Parameters • Scale: Time, Convenience, Age and Habit **B. Urban Space** **C. Urban Mass** **D. Urban Activity and Circulation** • The open space technique • The transportation system technique • The capital network technique • The plug-in technique • The individual building **Urban Aesthetics** • Beauty in cities • Relationship between site and city • Designing parts of the city.
Unit V	**Comprehensive role of urban design in planning process** • Urban design on a national and regional scale • Urban design at the metropolitan scale • Urban design at the scale of a city

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology :

Reference Books :
1. The architecture of towns and cities by Paul D Spreiregen
2. Illustrated urban design Guidelines.

Semester : **Tenth** **5th Year**

Subject Name : **ELECTIVE - DISASTER RESISTANT STRUCTURES**

Subject Code : **10JAR4.1**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
2	2	40	10	10	27	40	18	100	45	4

Objective : To understand other related dimensions of architecture.

Unit I	**Introduction:** • Types of disaster, meanings and related definitions. • Principles of Disaster Management, Hazards, Risks and Vulnerabilities. • Assessment of Disaster Vulnerability of a location and vulnerable groups. • Causes and effects of natural hazards. • Disaster profile of India. Building safety form natural hazards, introduction, earthquake, five safety in buildings, cyclone effects, high winds, storm surge, cyclone safety aspects in buildings, floods, landslides, disaster resistant structures
Unit II	Elementary seismology, causes of earthquake, seismic waves, magnitude, intensity, seismological instruments, earthquake zones
Unit III	Earthquake resistant structures, engineered and non-engineered buildings, architectural aspects – forms and shape, construction techniques for disaster resistant structures, innovative new materials.
Unit IV	Structural detailing, IS code provisions for the buildings IS:1893 and IS:4326, effect on tall buildings and IS:13828 Seismic designs and detailing of RC and steel building: IS:13920, IS:456, IS:800 and national building code, general provisions; seismic design principles
Unit V	Seismic vulnerability evaluation of existing buildings, study of cracks, repair and rehabilitation of buildings. Seismic strengthening, retrofitting, pase isolators, jacketing, masonry and concrete structures, few case studies of buildings after disaster and restoration, load bearing and R.C. fraened building.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology :

Reference Books :

1. Earthquack Risk Reduction by Dowrick (David)
2. Earthquake Protection by Coburn (Andrew)& Other
3. Earthquake Design Proticetor Building by Booth (Edmund)
4. Earthquake Resistant Des. Of Structures by Agarwal
5. Earthquake Resistant Desing Of Structure by Duggal

Semester : **Tenth** **5th Year**

Subject Name : **ELECTIVE - ARCHITECTURAL DEVELOPMENT AND LEGISLATION.**

Subject Code : **10JAR4.2**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
2	2	40	10	10	27	40	18	100	45	4

Objective : To understand other related dimensions of architecture.

Unit I	Introduction to land economics; land speculation and pricing of land; real estate.
Unit II	Architects role, responsibilities and liabilities during and after Project Completion
Unit III	• Introduction to Architectural development controls and regulations • Need and purpose • Type of developmental controls and regulations • Regulations Controls: brief on Zoning regulations (land use, height, density zoning etc) • Architectural Controls (building byelaws, environmental Controls, heritage, eco-sensitive, fennel area norms etc); • Government policies and various schemes
Unit IV	Agreement and its content; arbitration;
Unit V	Project Handling: Process and procedure from the inception of the project to its approval (authority) to execution on site.

Notes : Mid Term Exam shall be as of Unit I to III.

Exercise / Teaching Methodology

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Reference Books :

Semester : **Tenth** **5th Year**

Subject Name : **ADVANCED STUDY OF THESIS TOPIC**

Subject Code : **10JAR5**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
2	1	40	10	10	27	40	18	100	45	3

Objective : To study in detail subject area of the thesis topic.

Content : The student will undertake study guided by thesis guide in subject area of the topic selected for the thesis project.

Notes :

Exercise / Teaching Methodology

:

Reference Books :

Semester : **Tenth** **5th Year**

Subject Name : **THESIS PROJECT**

Subject Code : **10JAR6**

L	T/S	60% Mid Term Assessment			Min. Pass. Marks for 60% =(45%)	40% End Term Ass.	Min. Pass. Marks for 40% =(45%)	Total Marks.	Min.Pass Marks =(45%)	CREDITS
		Assignment 40%	Mid Term 10%	Attendance 10%						
-	6	200	50	50	135	200	90	500	225	6

Objective : Individual design project approved by department.

Content : Large scale project having complexity of urban and architectural resolutions. Culmination of all the skills acquired of architecture. Individual understanding of architectural theory, philosophy and architectural style, Student shall engage in study, documentation, analysis and design process of the project. The theoretical part to be put together in the form of a report and the design solution to be presented in hard/soft copy with a model.

Notes :

Exercise / Teaching Methodology

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Project : Selected by student and approved by department.

Reference Books :